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THE CARE OF CRIPPLES AS A PROBLEM FOR EACH INDIVIDUAL STATE *

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CHICAGO

In every state of the Union there is a large number of crippled persons who are not receiving proper attention. Many of them have no medical or surgical treatment whatever, and most of them have little opportunity to acquire a good education. Entirely aside from their own mental and physical sufferings, they constitute an enormous economic disadvantage and loss to their families and communities and to the state. It has been clearly demonstrated that most of these persons, by proper treatment, may be restored to a condition of usefulness, and that many of them, by proper education, may become able to earn a fair income.

Why is it, then, that only four of our states have established institutions in which cripples may be treated and educated? Is it because the legislators are unwilling to adopt so good a business proposition and so broad a charity? Or is it because the subject has not been presented with sufficient force and energy? The latter is probably the true reason.

It requires a great deal of hard work to persuade a state legislature to devote any of the state revenue to a new project, and the moving spirits in the enterprise must be prepared for a hard struggle. Minnesota, New York, Massachusetts and Nebraska have already established institutions for the care of cripples, and the other states must be induced to follow suit.

Allison, in his chairman's address before this section in 1915, states that in the United States there existed at that time ten hospitals, fourteen convalescent hospitals and thirteen asylum homes exclusively for cripples. This number has not been materially increased in the past two years. Approximately 2,000 patients can be accommodated in these institutions. These 2,000 represent a very small proportion of the cripples in the United States. No accurate figures exist to show the total number in this country, but on the basis of the English and German reports by Beyers and Lange, we must have at least half a million and probably more, the accepted proportion being from 3,000 to 3,500 cripples to the million inhabitants. Allison estimates that about 133,000 of these are under 14 years of age. In considering such figures, it must be remembered that not all of these cripples are in need of state or municipal care. Some of them are well treated and well educated at the expense of their own families; but it is safe to say that they form a considerable minority. Two thousand of the remainder are treated at the four state institutions mentioned above and the thirty-three institutions maintained by private charity; a few hundred more are cared for in the wards of general hospitals, and the rest of them are practically neglected, so far as education and skilled treatment are concerned.

We must, therefore, put our shoulders to the wheel and endeavor to construct a plan which will be comprehensive and practical, and which will appeal to the legislators of the various states. This plan should be worked out on a nonpolitical basis. The medical and the educational staffs should not be subject to removal for purely political reasons.

We should, it seems to me, advocate, in all states where it is possible, an orthopedic institution established and maintained by the state, and under the direction and management of the state university, the university furnishing the medical and surgical staff from its own medical school, and the educational staff from its other departments. This orthopedic institution should be one of the units of a state general hospital, which should be operated on the plan of the Michigan State Hospital at Ann Arbor, to which any resident of the state who is unable to pay for a private physician may go or be sent at the expense of the state.

Such an orthopedic institution should consist of a number of different departments: First, a hospital building of sufficient size, in which operative and mechanical treatment can be carried out for those who need it. Second, a convalescent department, for those less acutely affected, with separate provision for the case of tuberculous bone and joint disease. Third, a permanent home for those cripples who have no home.

It must be remembered that many of the patients in such an institution will have to remain there for years, that the larger proportion of them will be children, and that they must be educated as well as healed. It is in this respect that many institutions are deficient. The vast majority of cripples in this country can be made into useful citizens if they can be properly taught such forms of work as they are capable of performing. Their lives will be infinitely happier and more valuable if they can be trained in the useful arts and industries, and in place of being useless drags on the community, they will become actual producers and providers.

* Chairman's address, read before the Section on Orthopedic Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

An institution of the kind here outlined should be open to people of all ages. Many of our existing hospitals and homes for cripples accept only children, and when the little patients reach the age of 12 or 14 they are turned out into the world to shift for themselves, whether they are cured or not. We must make it very plain to our legislators that it takes many years to cure some of the cases of tuberculous joint disease, for example, and that there are many adults who need just as skilful and prolonged treatment as do the children. If we are to attempt some radical and constructive work in our various states, let us make it as comprehensive and as broad as possible.

The educational lines of the institution can hardly be discussed by a mere surgeon, but it would appear practical to teach the cripples useful trades, such as light manufacturing, shoemaking and cobbling, brush and basket making, sewing, millinery, dressmaking and embroidery, and to find a market for the results of the labor. Some of the patients will undoubtedly be found mentally equipped for higher education, and this could readily be provided.

It is probable that the great international conflict into which we are now plunged will rightly and properly overshadow any great progress in the directions that I have indicated, but we must, after all, build for the future, and we who spend our lives among these unfortunates should be the ones to turn the spotlight of publicity on their helplessness and their crying needs.

122 South Michigan Avenue.

THREE YEARS' EXPERIENCE IN THE SEARCH FOR TYPHOID CARRIERS IN MINNESOTA*

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MINNEAPOLIS

It is the policy of the Division of Preventable Diseases of the Minnesota State Board of Health to determine if possible the source of infection in all sporadic cases of typhoid fever as well as in outbreaks of considerable magnitude. The search for carriers as prosecuted by this division during the past three years has been so satisfactory that a review of the methods used, together with brief histories of the cases, is here presented.

On receipt of a report of a case or suspected case of typhoid fever, or on the finding of a positive Widal reaction in a specimen of blood sent to the laboratory, a blank, requesting certain epidemiologic data, is sent to the attending physician. This blank, when properly filled in, gives the following environmental data: residence and occupation; milk and water supply of patient during the three weeks prior to onset of disease; exposure to known cases of typhoid fever, and the synchronous development of typhoid fever in the patient's associates. Data which seem of no importance by themselves may be of significance and use when reviewed along with other data possessed by the division. Often widely separated cases are traced to a common source through the study of epidemiologic case reports and other data on file in the office of the division but not available elsewhere. If, after study of the data thus furnished and all other available data, the case appears to have been caused through some other route of infection than that of contact with another recognized case, it is further investigated. The epidemiologist visits the patient, together with the attending physician and health officer, if possible.

When the epidemiologic evidence points to the infection being of carrier origin, the following procedure is followed: Blood specimens for the Widal test are taken from those persons suspected of being responsible for the infection or from a group suspected of containing a carrier. Special attention is given to those who give a positive or possible history of typhoid fever. If the Widal reaction is found to be present or atypical in any of the suspected persons, specimens of the feces and urine are examined bacteriologically. If the epidemiologic information obtained points specifically to one or more persons in whom the Widal reaction is absent, the discharges from such suspects are likewise examined. Organisms isolated from the discharges are diagnosed *B. typhosus* or *B. paratyphosus* only after being found to conform to the recognized action of these organisms on the regularly used differential culture mediums, and to be agglutinated by typhoid or paratyphoid serum.

Under the regulations of the state board of health, a typhoid carrier is not permitted "to handle in any capacity milk, cream, butter, other food or food products liable to be eaten without being cooked, if such foods are to be offered for sale." This regulation is enforced, and if the carrier lives in an unsewered district, the use of a fly-proof sanitary privy is compulsory. The contents of the privy vault must be disinfected with lime or other disinfectant at stated intervals under the direction of the local health officer. Frequent thorough scrubbing of the interior of the privy is also insisted on. The carrier is instructed to cleanse the hands thoroughly after defecation and micturition and before handling table dishes, food, etc., to be used by others, and also to disinfect his personal bed and body linen. Any change in occupation or residence of a carrier must be reported to the local health officer and by him to the state board of health. Other members of a carrier's family are protected by typhoid vaccine, and they, too, are instructed as to the value of cleanly habits on their part. All information concerning a carrier is treated as confidential unless it becomes necessary to use publicity to enforce instructions. Whenever an epidemiologist is in the vicinity of a carrier, if possible, he visits him to see if instructions are being followed.

During the three years ending Dec. 31, 1916, sixty-nine carriers of *B. typhosus* or *B. paratyphosus* have been identified by the laboratory, and these cases fall readily into two groups. Group 1 contains thirty persons, twenty-five inmates of three state institutions, two for the insane and one for the feebleminded, and five patients in tuberculosis sanatoriums. Group 2

* From the Division of Preventable Diseases, State Board of Health.
* Because of lack of space, this article is abbreviated by the omission of reports of a number of cases. The article will appear in full in the reprints, a copy of which may be obtained from the authors on request.

contains thirty-nine persons found in the routine investigations to determine the sources of typhoid outbreaks.

Group 1. In a study[1] of the effects of typhoid immunization in relation to the Widal reaction, twenty-four persons in this group were found to have the Widal reaction present prior to administration of the vaccine. Previous history of typhoid fever in these carriers could not be learned because of the mental condition of the patients, all being either insane or feebleminded. All had been residents of their respective institutions for a long time. In these two institutions typhoid fever had been endemic. The epidemiologic evidence showed the endemic typhoid to be beyond doubt of carrier origin, but because of the nature of the patients and the community life, the exact number of cases traceable to each individual carrier could not be determined. Among these persons there was found to be a large number of carriers of *B. paratyphosus,* twelve out of twenty-four, besides one from whose discharges both *B. typhosus* and *B. paratyphosus* were isolated. The one remaining state institutional patient was recognized as a paratyphoid carrier after having given rise through direct contact to at least three cases among her associates.

The five carriers in this group who were inmates of sanatoriums were found in a study[2] of the Widal reaction in the tuberculous. One showed the presence of *B. typhosus* in the feces and gave a history of typhoid fever thirty-three years previously. From the discharges of the other four, *B. paratyphosus* was isolated. One of these gave a doubtful history of typhoid fever, but the remaining three gave no typhoid history.

Group 2. This consists of thirty-nine carriers, thirty-two of *B. typhosus* and seven of *B. paratyphosus,* found in the routine epidemiologic investigations of sporadic cases during the three-year period.

REPORT OF CASES

CASE 7 (Dec. 26, 1914).—Mrs. K. K., aged 65, gave a history of fever for seven weeks in 1894, no diagnosis being made. Mrs. K. K. and her husband had a small farm and kept seven cows, supplying milk, butter and cheese to neighbors. Three neighbors who boarded at the K. K. house developed typhoid, one in 1900, one in 1901, and one in 1902. In 1904 a woman from Norway visited the K. K. farm and developed the disease after three weeks' stay there and became a paratyphoid carrier (Case 10 of this series). In 1908 an employee developed typhoid and died, and in 1912 and 1913 two other employees contracted typhoid. In 1914, three persons in a neighbor's family who used milk from the K. K. farm and one visitor at the farm were infected. One of these became a chronic carrier (Case 9). Four cases, including one fatal one, occurred the same year in a veterinarian's family supplied with cheese from this farm. In 1915, after K. K. had been identified as a carrier and given instructions for proper care of her discharges, she infected a boy who boarded there for a short time.

CASE 11 (Feb. 17, 1915).—Mrs. G. H. S., aged 37, had typhoid in 1906 and was operated on for gallstones four months later. Two sons in 1907, a farm hand in 1912 and a daughter in 1914 contracted typhoid.

CASE 31 (May 19, 1916).—Mrs. G. S., aged 53, gave no history of typhoid, but because of cases occurring on the farm, the examinations were made. The following five cases occurred on the farm, in an employee in 1898, another employee in 1900, a sister in 1902, a grandson in 1911 and a son-in-law in 1913.

CASE 34 (June 6, 1916).—Mrs. H. B., aged 56, gave no history of typhoid or of any sickness resembling it. She milked four cows and supplied five families with the milk. Typhoid occurred in eight users of the milk: one in 1912, three in 1913, two in 1914 and two in 1916. After her identification as a carrier, at which time she was ordered to give up the milk business, another case occurred in the neighborhood. On investigation it was found that she had resumed the selling of milk and was supplying it to this person.

REVIEW OF CASES

The larger number of the specimens from this series of cases were collected without the assistance of a nurse, the epidemiologist directing the wife or mother in the household as to the use of a laxative and the cleansing and disinfecting of the receptacles. Sterile bottles were furnished for the transmission of specimens to the laboratory.

The possibility of contamination of the specimens from one person by another in the same household was brought out in Case 23. Following this, more specific directions were given; but two months later, when a similar instance occurred in Case 30, a complete new outfit was devised and used. This outfit consists of a corrugated pasteboard shipping box containing:

Two sterile paraffined pasteboard boxes (oyster pails); two sterile tongue depressors; two sterile 4 ounce pomade bottles; one data card, and a leaflet giving the following directions:

1. Give persons from whom specimens are to be collected a laxative.
2. Remove paper containers from packing case, and remove contents from them.
3. Have patient pass stool directly into one of the sterilized paper containers.
4. By means of the enclosed sticks, transfer to one of the sterile bottles part of the last portion of the stool passed, preferably soft or semifluid material.
5. Have patient pass urine into the other paper container.
6. Pour some of the urine into second sterile bottle.
7. Label both bottles with patient's name, and date and hour of collection of specimen.
8. Cork tightly, and wrap both bottles in cotton, and pack in the outer container in which bottles were received. Destroy in a safe manner the paper containers and sticks.
9. Ship these specimens at once by *express,* not mail. Specimens must reach the laboratory in the shortest time possible. Therefore telephone or telegraph the laboratory of the State Board of Health, Minneapolis, at our expense, notifying us of the train on which the specimens are being sent so that the train may be met at the Minneapolis depot, and the specimens received in the shortest time possible.
10. Please do *not* send specimens that will arrive on Saturday afternoons, Sundays or holidays.

Train leaves ..... at .....

Cases 23 and 30 gave a history of typhoid, but in each case the Widal reaction was absent at the time of the investigation. Both cases are omitted from the table, there being but one colony of *B. typhosus* found on the plates in each instance, and in two later examinations in Case 30 no typhoid bacilli were found.

The tables show that 220 cases, including twelve fatalities, have been traced to these thirty-seven carriers, an average of six cases per carrier. Six of the 220 patients are known to have become chronic carriers. Omitting the paratyphoid carriers, we have 213 cases due to thirty carriers, or an average of seven cases each. Of the thirty typhoid carriers, twenty-five gave a history of previous typhoid and five gave no such history. Three of these five patients were members of groups suspected on epidemiologic evidences of containing one or more carriers. In the fourth, Case 34, the epidemiologic investigation pointed directly to this person as a carrier. The discharges from these four persons were searched for

1. McDaniel, Orianna, and Wade, E. M.: The Significance of Typhoid Carriers in Community Life, with a Practical Method of Detecting Them, Am. Jour. Pub. Health, 1915, **5**, 764.
2. Chesley, A. J., and Wade, E. M.: Proc. Nat. Assn. Study and Prev. Tuberc., 1915, p. 250.

typhoid bacilli on the finding of agglutinins in the blood. The fifth, Case 20, was found in the course of a thorough dairy inspection following the appearance of typhoid fever in an employee. Since the Widal reaction in this case was absent at the time of the investigation and present ten days later, it appears that this person was either a transient or a precocious carrier (Sacquépée).

Of the typhoid carriers, twenty-five of the thirty were females. Of the five male carriers in this group, only one is known to have infected a large number of persons, ten; one infected three persons, and another is known to have infected one. Of the twenty-five female carriers from whom it has been possible to trace secondary infections, an average of eight cases has been traced to each. From the nature of their occupations, a larger proportion of female carriers would be likely to infect others, and hence one might expect to find more carriers among women than among men in routine investigations into the source of infection in sporadic or endemic typhoid. No summary has been made of the carriers reported in the literature as to sex incidence, but it seems apparent that in the large number of carriers that have been detected in ordinary every-day life, women are considerably in excess of men. In Group 2, routine investigations, the proportion of female to male carriers is 5:1. In our institutional series (Group 1), the proportion of male carriers to female was as 1.4:1, the population consisting of 1.2 males to 1 female. In those persons merely suspected of being carriers, that is, in whom the Widal test was positive but in whose discharges typhoid bacilli were not found, possibly owing to the few examinations made, the proportion of males to females was but slightly less than that of the proved carriers.

The ages of the identified typhoid carriers in our routine series varied from 32 to 83 years, with the exception of two men, aged 21 and 28, to whom no cases were traced. All women carriers were aged 30 or over, and all but five were 40 years or more of age, the average age being 52 years. The lapse of time between infection and identification of the carrier condition of the women, when time of typhoid fever was known, varied from one to 40 years, averaging 11.2 years, leaving the average age at the time of infection 40.8 years.

The average age of the male typhoid carriers was 48 years and the average duration since typhoid infection was five years, leaving the average age at time of infection as 43 years.

Of the seven paratyphoid carriers, six gave a history of clinical typhoid fever. In Case 32, in which a history of typhoid fever was absent, the patient was the husband of a carrier of typhoid bacilli (Case 31) who also gave no history of typhoid fever.

In this group there were six men and one woman. Six cases were traced to two of the male carriers and

TABLE 1.—TYPHOID CARRIERS

Case, Age and Sex	Widal Test	B. Typhosus	Years Since Typhoid Fever	No. Cases Infected	Members of Family	Employees and Boarders	Relatives	Neighbors	Deaths
1—40—F ...	+	Feces	16	4	1	2	1	0	1
2—68—F ...	+	Feces	5	15	2	4	6	3	0
3—68—F ...	+	Feces	28	23	0	0	6	17	0
4—83—M ...	+	Feces	8	3	2	0	0	1	0
5—79—F ...	+	Feces	3	8	1	5	2	0	0
6—54—M ...	+	Feces	1	10	0	1	9	0	1
7—66—F ...	Atypical	Feces	20	16	0	9	0	7	2
8—65—F ...	+	Feces	6	3	0	0	3	0	0
9—54—F ...	+	Feces	1	0	0	0	0	0	0
11—37—F ...	+	Feces	9	4	3	1	0	0	0
12—34—F ...	+	Feces & Urine	15	3	2	1	0	0	0
13—40—F ...	+	Feces & Urine	4	11	3	0	0	8	0
14—72—F ..	Atypical	Feces	40	19	6	3	6	4	1
15—55—M ...	+	Feces	14	1	0	0	0	1	0
16—32—F ...	+	Feces	1½	0	0	0	0	0	0
17—65—F ...	+	Feces & Urine	1½	1	0	0	0	1	0
18—45—F ...	+	Feces	6	3	2	1	0	0	0
20—28—M ...	+	Feces	..	0	0	0	0	0	0
21—48—F ..	+	Feces	4	1	1	0	0	0	0
22—57—F ...	Atypical	Feces & Urine	30	8	0	0	0	8	2
24—21—M ...	+	Feces	2	0	0	0	0	0	0
25—34—F ...	+	Urine	⅓	1	1	0	0	0	0
26—58—F ...	+	Feces	..	0	0	0	0	0	0
27—34—F ..	+	Feces	..	30	2	1	9	18	3
29—46—F ...	+	Feces	5	0	0	0	0	0	0
31—53—F ...	Atypical	Feces	..	5	0	2	3	0	0
34—56—F ...	+	Feces & Urine	..	9	0	0	0	9	0
36—78—F ...	+	Feces	3	3	1	0	2	0	0
37—56—F ...	+	Feces	32	25	0	0	0	25	0
39—59—F ...	+	Feces	5	7	1	0	0	6	2
52.8(aver.)			10.4(aver.)	213	28	30	47	108	12

TABLE 2.—PARATYPHOID CARRIERS

Case, Age and Sex	Widal Test		B. Paratyphosus	Years Since Typhoid Fever	No. Cases Infected	Members of Family	Neighbors	Deaths
	Typhoid	Paratyphoid						
10—44—F	—	+	Urine	10	1	0	1	0
19— 3—M	+	+	Feces	1½	0	0	0	0
28— 6—M	—	0	Feces	2	0	0	0	0
32—57—M	—	0	Urine	—	0	0	0	0
33—23—M	Slight	+	Feces	3	0	0	0	0
35—34—M	+	+	Feces	1	2	2	0	0
38—20—M	0	0	Feces	½	4	0	4	0
26.7 (average)				3 (aver.)	7	2	5	0

one to the female carrier. The remaining four carriers, so far as is known, have not given rise to any cases.

The paratyphoid carriers averaged only 26.7 years of age at the time of detection, and the time intervening between infection and identification averaged only three years.

The high percentage of positive Widal reactions in the blood of the carriers here reported is notable. In the carriers of *B. typhosus*, all but two gave either a complete or a partial reaction (twenty-six complete, four atypical). In Cases 23 and 30, in which the Widal reaction was absent, the possibility of contaminated specimens having been sent for examination must be considered. It might be held that if in the suspected groups the discharges from a greater number of persons in whom the Widal reaction was absent had been examined, more carriers would have been found. In response to such a suggestion, it can be said that in some of the suspected groups the discharges were examined with negative results in from three to twenty-nine persons in whom the Widal reaction was absent, and further, that no later cases occurred in the various communities after these carriers were detected and placed under proper supervision. It is true that in each of three communities one case of typhoid fever occurred following the detection of their respective carriers, but on investigation the infection was traceable in each instance to the negligence of the already identified carrier (Cases 5, 7 and 34).

Certain factors which tend to stasis in the gallbladder are thought to have their influence on the development of cholecystitis and cholelithiasis. These factors, many of which are present in those advanced in years, or in women, have often been enumerated in explanation of the fact that gallbladder troubles are more prevalent after middle life than before, and in women than in men. If this explanation of the age and sex incidence of gallbladder infections is correct, then we should expect to find a higher proportion of carriers in those who undergo a siege of typhoid fever late in life and in women rather than in the young and in men.

In our routine series, the average age at time of infection, over 40 years, appears strikingly suggestive when it is remembered that typhoid fever is most prevalent among the young. The proportion of female to male carriers in this series, 5:1, appears to tally fairly closely with the sex incidence of cholecystitis and cholelithiasis in general.

It is regretted that a more complete study of the cases in the institutional series could not have been made. Possibly a knowledge of the age incidence of the infection of the identified carriers in this series would explain the lesser proportion of female to male carriers.

The Profession in the Netherlands.—Some recently published statistics show that there are 3,167 physicians in the Netherlands (population over 6 millions). The number of those who obtained elsewhere their license to practice is 2,497. There are 1,695 medical students in the various universities, including 224 women. This is an increase over a year ago when the figures were respectively 1,521 and 175. In 1915 there were 1,565 and in 1914, 1,790. The mobilization of the troops explains the drop since. There are thirty-three asylums for the insane, and they are caring for 7,549 men and 7,464 women, a total of 15,013, an increase of 500 over last year.

RAPID REDUCTION OF INTRA-OCULAR TENSION IN GLAUCOMA

BY TIMED INTRAVENOUS GLUCOSE INJECTIONS*

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In the course of studies with timed intravenous injections of sugars, salts, etc., several phases of which have been previously reported by Woodyatt, Sansum and Wilder,[1] observations have been made on possible clinical uses of the rapid dehydration of the organism which may be produced when sugar or salts are injected uniformly into the vein at rates which lead to the excretion of water through the kidneys faster than water is administered with the sugar or salt.

When glucose is injected by vein uniformly at or below the tolerance limit which, in normal resting individuals, lies as a rule between 0.8 and 0.9 gm. per kilogram of body weight per hour, there is no increase in the rate of diuresis greater than can be accounted for by the extra water given.[2] In fact, a definite antidiuretic tendency manifests itself.[3] But when glucose is injected so fast as to produce a sufficiently rapid excretion of glucose, increased diuresis results; and then if the water injected with the glucose is less than that excreted in the urine, the tendency is toward dehydration. By employing 36 to 54 per cent. glucose solutions and injecting them at rates corresponding to from 3.6 to 5.4 gm. of glucose per kilogram per hour, heavy glycosuria and rapid dehydration occur.

The question arises as to whether or not and to what degree fluid can be drawn to advantage from a localized area such, for example, as a blister, an effusion in a serous cavity, a glaucomatous eye, or the like. An opportunity for experimental study presented itself when Dr. E. V. L. Brown asked that we attempt to lower the intra-ocular tension in a certain case of glaucoma then under his observation. Three successful attempts with this case led to the application of the same principle in a second case on the service of Dr. William H. Wilder. The results obtained are reported in the belief that the principles and methods employed will be found of clinical interest. It is not improbable, however, that the details of the operation as here described might to advantage be modified, since it would appear that the dehydration was unnecessarily rapid and that equivalent beneficial results might be attained with less risk of harm by a more gradual procedure.

REVIEW OF THE LITERATURE

The abstraction of fluid from the body as a whole, including the eye, is by no means a new idea in the management of glaucoma, for among the accepted treatments are free elimination by sweating, diuresis and catharsis. Local abstractions of fluid by the application of leeches or the subconjunctival injection of salts are also well known procedures. According to Fischer's[4] theory of glaucoma, the condition constitutes essentially a local edema, a swelling of the ocular colloids, especially of the vitreous, due to an increased

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1. Woodyatt, R. T., Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, THE JOURNAL A. M. A., Dec. 11, 1915, p. 2067. Woodyatt, R. T.: Studies in Intermediate Carbohydrate Metabolism, Harvey Society Lecture, 1916.
2. Wilder, R. M., and Sansum, W. D.: d-Glucose Tolerance in Health and Disease, Arch. Int. Med., February, 1917, p. 311.
3. Woodyatt, R. T., and Sansum, W. D.: Jour. Biol. Chem., 1917, **30**, 155.
4. Fischer, M. H.: Arch. f. d. ges. Physiol. (Pflüger's), 1908, **125**, 396; 1909, **127**, 1.

affinity of the colloids for water. As salts in suitable concentrations may cause the separation of water from swollen protein gels, so in an analogous manner they may lower the tension of an eye. On the basis of experiments showing the parallel effects of salts on enucleated eyes and on protein gels, Hayward and Fischer[5] suggested both local and general treatments, the former consisting in subconjunctival injections of from eighth molecular to sixth molecular (from 4.05 to 5.41 per cent.) sodium acetate solutions, the latter in rectal administration of from 1,000 to 1,500 c.c. of Fischer's hypertonic salt solution. Both in their hands gave beneficial results. Hertel[6] used hypertonic salt solutions to lower intra-ocular tension as a preliminary step to iridectomy. He reports one case in which, following the intravenous injection of 120 c.c. of a 10 per cent. solution, the intra-ocular tension fell from 72 to 30 mm. of mercury. The time or rate of injection was not stated. In another case following the oral administration of 200 c.c. of the same solution, the tension was lowered from 80 to 22 mm. of mercury. He also used hypotonic solutions to restore ocular tension in the hypotonia found in such conditions as diabetic coma. In this connection it is interesting to note in anticipation of what follows that the "soft eyeball" which may be encountered in diabetes would appear to be merely a part of that general dehydration of the body which goes hand in hand with sugar diuresis and other manifestations of the effects of excessive quantities of free glucose in the body.

TECHNIC

The glucose employed was a chemically pure product prepared in this laboratory. The details of its preparation are described elsewhere.[3] The water was freshly distilled with the same precautions as are observed in its preparation for salvarsan administrations. Approximately 2 to 3 molecular (36 to 54 per cent.) glucose solutions were made up by weight, carefully filtered and sterilized in the autoclave. The exact titer was then determined in each case by the polariscope. The volumetric pump has been described in detail in a recent communication.[7] The details of operation, with the arrangement of the apparatus, also have been described elsewhere.[2] The rate of injection will depend on the titer of the solution used, the nature of the case, and the quantity of water it is desired to abstract from the body in a specified time. The slower rates of injection extending over two hours or more tend to eliminate the chill and lessen the dangers attendant on the too rapid increase of intravascular pressure and decrease of intra-ocular tension. Other things being equal, the higher the rate of glucose injection and the less the water given with the glucose, the greater the dehydrating power. A 54 per cent. solution given at a rate corresponding to 3.6 gm. of glucose per kilogram per hour (that is, 6.66 c.c. of a 54 per cent. solution per kilogram per hour) has greater dehydrating power than the same quantity of glucose given in the same time in the form of a 36 per cent. solution (that is, 10 c.c. of a 36 per cent. solution per kilogram per hour). With a solution of fixed concentration (as 54 per cent.), the degree of dehydration will be proportional to the quantity given in a specified time. The intra-ocular tension was taken with a Gradle-Schiötz tonometer by the ophthalmologists in charge of the case.

5. Hayward, G. T., and Fischer, M. H.: Ann. Ophth., 1910, **19**, 40.
6. Hertel: Arch. f. Ophth. (Sattler), 1915, **90**, 309.
7. Woodyatt, R. T.: Jour. Biol. Chem., 1917, **29**, 355.

CASE HISTORIES AND EXPERIMENTS

Case 1.—This was one of syphilitic iritis plastica with secondary glaucoma on the service of Dr. E. V. L. Brown, who provided the following history:

History.—Mrs. S., colored, widow, aged 52, was admitted to the Cook County Hospital, Dec. 1, 1915, complaining of pain and swelling in the left eye, photophobia, headaches, joint pains and a fading maculopapular eruption on the body. The eye trouble had begun about two weeks before admission with redness and photophobia in the left eye followed by failing vision and joint pains which grew progressively worse. The rash, accompanied by sores in the mouth and headaches, had appeared about six weeks prior to admission. The past history was negative.

Physical Examination.—The patient is a fairly well developed but poorly nourished negress. She appears ill and as if she had recently lost in weight and strength.

Eyes: There is slight edema of the conjunctiva of the right eye. The left eye is nearly closed, owing to edema of the lids. There is profuse lacrimation and chemosis of the bulbar conjunctiva. The cornea is dulled and everywhere overstrewn with epithelial pits. The stroma is clear. There is no gross keratitis punctata. There is marked ciliary and conjunctival injection. Two thirds of the anterior chamber is obliterated totally in the sector corresponding to that between I and VII of the clock dial, and half obliterated in the sector between VII and I by the anteriorly displaced iris. The central one fourth of the chamber is normal in depth. The very irregular, 2 mm. pupil is completely encircled by posterior synechias, and is blocked by a greenish white, nonvascular exudate. There is a sail-like forward bulging of the body of the iris (*iris bombe*). There are no condylomas or tuberculous nodes, although the iris is furrowed radially from the pupillary border one-half way to II of the clock dial and less deeply to XI. The iris markings are blurred, but otherwise the tissue is not much changed. The crystalline lens and entire back of the cornea are covered by very fine discrete gray flecks of exudate. R. V., 3/10; L. V., shadows. Tension, right, 18¾; left, 54 mm. of mercury. The synechiae are uninfluenced by the use of atropin.

Mouth: One small area suggests a mucous patch. Neck: There is cervical and submaxillary adenopathy. Chest: Negative. The heart tones and borders are normal. Blood pressure, 135 systolic and 80 diastolic. Genitalia: There is inguinal and femoral adenopathy. Extremities: There is marked epitrochlear adenopathy. Skin: Across the forehead, about the eyes, and on the upper forearms are numerous split-pea sized, flat, slightly elevated papules which appear a little darker than the normal skin. Laboratory: Urine, normal. Wassermann reaction in the blood plasma +++. Complement fixation test for gonorrheal infection in the blood plasma +.

Therapeutic Dehydration.—An iridectomy for the immediate relief of pressure would have been the procedure of choice; but, owing to the fear of complications, such as prolapse of the iris and intra-ocular hemorrhage from the too sudden lowering of tension, the surgeon preferred, if possible, to operate under more favorable conditions. The proposal was therefore made to attempt the reduction of intra-ocular tension by general means. December 6, after a careful physical examination had demonstrated a sound cardiovascular-renal system with the blood pressure within normal limits, the patient received 41.2 per cent. glucose solution by vein at the rate of 11.2 c.c. per kilogram per hour for sixty-nine minutes. The 47.5 kg. patient thus received in sixty-nine minutes a total of 612 c.c. of 41.2 per cent. glucose solution containing 252 gm. of glucose and approximately 471 c.c. of water. As the result of the injection, the patient passed 2,247 c.c. of urine, as against the 471 c.c. of water injected with the glucose, thereby creating a water deficit in the body of 1,776 c.c., or 37.4 c.c. per kilogram. The blood pressure before the operation was 135 systolic and 80 diastolic. During the injection it rose to 155—100, and after the injection it fell to 95—65, systolic and diastolic, respectively. On the following morning at 10:30 it had risen to 120 systolic and 90 diastolic. The

temperature before the injection was 98.4 F. One hour after the injection it was 102. It then gradually declined to normal in the course of twenty-four hours. Toward the end of the injection for twenty minutes the patient shook as though in a chill, but did not complain of any discomfort. The intra-ocular tension before the injection was 60.5 mm. of mercury and fell to 26 mm. In the right or normal eye it fell from 15.25 to 12.25. The fall in tension was so striking that the question was raised as to whether if the operation were repeated and followed by a suitable after-treatment the advantage gained might not be maintained for a long enough time to preclude the necessity of operation entirely.

Second Dehydration.—December 14, the treatment was repeated. This time an effort was made to abstract the water more gradually. The patient received a 38.9 per cent. glucose solution by vein at the rate of 8.7 c.c. per kilogram per hour for 108 minutes. The 45 kg. patient thus received in 108 minutes 702 c.c. of 38.9 per cent. solution containing 273 gm. of glucose and approximately 548 c.c. of water. As a result of the injection the patient passed 2,359 c.c. of urine while receiving 548 c.c. of water with the glucose, thereby creating a water deficit in the body of 1,811 c.c., or 40 c.c. per kilogram. The tension in the left eye fell from 54 to 18 mm. of mercury. In the right or normal eye it fell from 15.25 to 7.25. In this instance the blood pressure reached a maximum of 185 mm. There was a "chill" lasting forty minutes. The temperature rose to 102.2. The after-treatment consisted in the limitation of the total water intake to 2,000 c.c. in twenty-four hours, with fifteen doses each consisting of 1 gm. of sodium bicarbonate and 0.66 gm. of sodium acetate with compound jalap powder and magnesium sulphate enough to produce three or four watery stools daily. The after-treatment failed. The patient complained of thirst, and the intra-ocular tension gradually rose, reaching 44 mm. of mercury by the end of twenty-four hours, when the treatment was stopped because of nausea. After this the tension gradually rose, reaching 47 in three days and 66.75 by the end of a week.

Third Dehydration.—This was performed, December 21, as a preliminary measure to an iridectomy. The procedure was carried out still more slowly than in the second injection. The patient received 36 per cent. glucose solution at the rate of 7.7 c.c. per kilogram per hour for 115 minutes. Thus the 45 kg. patient was given 662 c.c. of 36 per cent. solution, containing 238 gm. of glucose and approximately 530 c.c. of water. The urine totaled 2,275 c.c., while 530 c.c. of water were injected with the glucose. A water deficit of about 1,745 c.c., or 39 c.c. per kilogram, was therefore produced. Although nearly as much water as before was abstracted, the time consumed was longer, and there was in this instance no chill. The temperature rose to 101. The systolic blood pressure reached 148 and the diastolic 100 mm. of mercury. The intra-ocular tension was reduced from 66.75 to 37.75. This reading was taken just before the close of the injection; but at the time of operation, thirty minutes later, it was normal to palpation. Iridectomy was then performed by Dr. Brown. The patient was put on an antisyphilitic management and made an uneventful recovery. The cornea became clear. The hyperemia and the anterior synechiae disappeared. The tension remained so low that it was impossible to make satisfactory readings.

The foregoing results were taken to demonstrate the feasibility of lowering intra-ocular tension in a case of the type described; but the question remained as to whether or not parallel results could be obtained in a case of so-called primary glaucoma.

CASE 2.—This was one of very severe acute, primary glaucoma that developed after the patient had been in the hospital about a month and in spite of careful medicinal and surgical management. The patient was one of Dr. W. H. Wilder, who kindly furnished the history.

History.—Mrs. Jane G., aged 46, with glaucoma, was first examined by me, Jan. 1, 1916. She gave a history that one and a half years before the sight of the right eye began to fail, and examination by a specialist revealed that the fields were contracted. About June 1, 1916, she noticed that the central vision of the right eye was much reduced. At times she has had pain in the eyes and has noticed rainbows about a light. Recently the sight of the left eye has been clouded, especially so when she feels nervous.

R. V. with sph. 6.00, cyl. 2.00, axis 90° 20/70
L. V. with sph. 6.50, cyl. 1.75, axis 110° 20/30

Disks: The right is deeply cupped, about 2 mm. In the left there is a deep physiologic cup, but the edges are normal. The vessels are somewhat congested. The intra-ocular tension in the right eye is 55 and in the left 25 mm. of mercury. Fields: It is impossible to chart the fields of the right eye. In the left eye the white is somewhat contracted above and below. The red reads: above, 18°; below, 18°; nasal, 18°, and temporal, 55°. The green reads: above, 10°; below, 10°; nasal, 12°, and temporal, 40°.

I advised an operation on the right eye and later on the left eye if the tension should become increased. June 26, 1916, at the Presbyterian Hospital I did an Elliot trephining on the right eye with good results. About two weeks later the tension in the left eye became high and the patient had an acute attack of glaucoma in this eye. July 14, I did an iridotasis on the left eye and at the same time an iridectomy on the right eye, for the tension in that had risen again. The right eye quieted down following this iridectomy. The left eye recovered well from the iridotasis and remained low or normal for a few days, when the patient again had an acute attack of glaucoma with a tension up to 60 mm. of mercury, shallow anterior chamber, and violent pain requiring narcotics.

Therapeutic Dehydration.—An iridectomy for the immediate relief of pressure would have been the operation of choice; owing, however, to the fear of complications, such as prolapse of the iris and intra-ocular hemorrhage from the too sudden lowering of tension, the surgeon preferred to work under more favorable conditions. Knowing of the work on the previous case, Dr. Wilder asked that we attempt to lower the tension in this case by the intravenous injection of glucose in preparation for an iridectomy. A careful physical examination showed that the heart, blood vessels and urinary system were in sufficiently good condition. The systolic blood pressure was 146 and the diastolic 100 mm. of mercury. There was a marked edema of the lids and surrounding tissues. The intra-ocular tension was 60 mm. The anterior chamber was obliterated. July 20, the patient received 55.2 per cent. glucose solution by vein at the uniform rate of 10 c.c. per kilogram per hour for seventy-six minutes. The 60 kg. patient thus received 691 c.c. of 55.2 per cent. glucose solution containing 380 gm. of glucose and approximately 491 c.c. of water. As a result of the injection there was passed 1,250 c.c. of urine as against 491 c.c. of water injected with the glucose, thereby creating a water deficit in the body of 759 c.c., or 13 c.c. per kilogram. The intra-ocular tension as observed by Dr. W. H. Wilder fell from 60 to 20 mm. of mercury. There was no chill. The temperature rose to a maximum of 101. The iridectomy was then performed by Dr. Wilder under light ether anesthesia. Before and during the first part of the injection the patient suffered greatly from pain in the eye and was very restless. During the latter part the pain wholly disappeared, and the patient became quiet and went to sleep. *The edema of the lids and surrounding tissues disappeared entirely under the eyes of the observers during the injection.* The anterior chamber remained very shallow. The high rate of injection was chosen in this instance because the patient had been taking large doses of morphin which it was feared might retard the liberation of water, although it was not known by experiment that such would be the case. Dr. Wilder provides the following notes on the subsequent clinical history of the case:

Subsequent History.—Before the iridectomy, July 20, 1916, the tension was lowered by the intravenous injection of glucose solution by Dr. Sansum and Dr. R. M. Wilder. This lowered the tension to 20 mm. of mercury, and an iridectomy was satisfactorily done under ether narcosis administered by Dr. Herb. The eye quieted after this operation, and in one week the patient left the hospital. The tension remained

normal, but the patient continued using 1 per cent. physostigmin (eserin) and 5 per cent. ethylmorphin hydrochlorid (dionin). She was weak for some time, and the elixir of iron, quinin and strychnin was prescribed. The tension seemed increased at times. Feb. 10, 1917, it was 35 mm. Feb. 21, 1917, R. V. 0; L. V. with sph. 200, cyl. 5.50, axis 15° 20/50. These lenses were ordered in tinted glass and the physostigmin and ethylmorphin hydrochlorid continued. The right optical disk was deeply cupped and the left slightly cupped.

COMMENT

The theory of the nature and mechanism of glucose diuresis has been discussed elsewhere[8] and need not be repeated here. The increased temperature observed with each of the injections is a phenomenon which we have encountered in the course of intravenous glucose injections in animals when dehydration has been pushed beyond a certain degree. The same applies to the chill. A discussion of the theoretical significance of the fever and chill would be irrelevant in this place. The increased blood pressure is associated with the increased blood volume due to the flow of water into the blood owing to the presence in the blood of increased quantities of free glucose.[8]

Attention is directed to the temporary but marked elevation of blood volume and blood pressure during the intravenous injection of glucose because an injudicious application of the principle of intravenous sugar or salt injection to cases in which the cardiovascular system was impaired might lead to deleterious effects. In the cases here reported the treatment was not instituted without a careful preliminary consideration of the heart, vessels and renal function. A powerful procedure such as this, which is capable of radically lowering intra-ocular tension and simultaneously elevating the intravascular tension, should obviously not be undertaken blindly or without due care in cases in which the condition of the vessels, especially those within the eye, would render them liable to rupture by a too rapid change of pressure relations. As stated at the outset, the details of the operation as here described are not presented as necessarily the most appropriate for clinical work generally. They might be modified in other cases and in the light of further experience.

By a suitable selection of the rate of glucose injection and of the quantity of water abstracted in a given time, it should be possible to control to a nicety the rate and degree of ocular pressure reduction to meet the demands of the ophthalmologist. In this connection it may be noted that the possibility of positive control is greater than it is in the ordinary local operative procedures which are in general use by ophthalmologists.

The experiments demonstrate without any question the possibility of quickly lowering intra-ocular tension in the types of glaucoma described and in the normal eye.

It is not the purpose of the present report to decide when a procedure of the kind herein described should have the preference over other known resources in ophthalmologic practice. It appears to offer a means of lowering intra-ocular tension to a degree and at a rate chosen by the surgeon either in a normal or a glaucomatous eye. It would appear to be a method particularly sensitive to control and especially fitted to meet the demands for a rapid temporary reduction of intra-ocular tension to prevent the damaging effects of mechanical pressure and to pave the way for a surgical operation which cannot be safely or satisfactorily performed with the existing intra-ocular tension. The advantages or disadvantages of the method as compared with cyclodialysis, sclerotomy, etc., could be stated only after further investigation by specialists.

8. Compare Lusk: Jour. Biol. Chem., 1912, **13**, 27. Fisher and Wishart: Ibid., 1912, **13**, 49. Woodyatt and Sansum (Footnote 3).

HOOKWORM CONTROL IN SOUTH CHINA

BASED ON A PRELIMINARY STUDY OF THE INCIDENCE OF HOOKWORM INFECTION IN HUNAN PROVINCE, CHINA

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The problem of the control of hookworm infection in South China differs in so many essentials from the same problem in America and in other Western countries that its solution will require long planning by specialists and a persistently carried out program of practical endeavor. In many of the American states, the carelessly built latrine, or its total absence, has made soil pollution frequent. In India, in the rural districts, human excrement is deposited directly on the soil, but without any organized system of using it for fertilizer. In South China, however, it is the custom to collect it in earthen jars and to ladle it out from these into buckets to be hurried out to the fields and gardens for fertilizer. Each farmer or gardener has a little cesspool into which the bucket contents are poured for storage. Fertilization is not limited to manuring the ground, but, especially in vegetable gardens, suitable aqueous dilutions of the pool contents are sprinkled over the growing crop at appropriate intervals, the human excrement being literally smeared over the vegetable leaf. Later, when these vegetables reach the kitchen, they frequently receive cooking that falls far short of sterilization. With such methods of enrichment, followed by scant cooking, the wonder is, not that some of the people have intestinal disease and parasitic infection, but that any one escapes. We may thus note at the outset that the study of hookworm in China is complicated by many factors not present in other lands. Some of these are:

1. The universal use of human excrement for fertilizer.

2. The consequent and continuous discharge of effluent, containing parasitic ova and larval forms, into streams, contaminating both their waters and the soil of their banks.

3. The presence of disease due to other animal parasites, such as *Schistosoma japonica,* whose symptomatology resembles, in so many ways, that of hookworm infection.

4. The frequency of concurrent infection with hookworm and malarial or other fevers, rendering it difficult to gage the exact morbid significance of each.

It is my purpose, in this paper, to present a summary of recent surveys made to determine the extent of hookworm infection in Hunan province, and to discuss, in the light of these surveys, some of the factors bearing on its control in South China.

HISTORICAL DATA

Jefferys and Maxwell[1] have pointed out that hookworm is to be found over wide areas of the country,

1. Jefferys, W. H., and Maxwell, J. L.: Diseases of China, Including Formosa and Korea, Philadelphia, P. Blakiston's Son & Co., 1910.

being especially prevalent in the Yangtze River valley, in which Hunan province lies. No systematic survey had been attempted in Hunan before 1914, either of geographic districts involved or of occupational incidence; nor had any one described the special influences favoring transmission of the infection due to locality or mode of life. At the same time, reports show that very early in the history of medical missionary work in Hunan, the microscope had been faithfully used, especially in the larger cities, such as Changsha, Changteh, Hengchow, Siangtan and Yiyang. These reports are included in the statistical tables published by the research committees of the China Medical Missionary Association. Hookworm has been reported from every city in which fecal examinations have been made; both *Ancylostoma duodenale* and *Uncinaria americana* have been identified, the former more frequently.

The Rockefeller Sanitary Commission has published a report,[2] wherein it is said that "nothing is being done by the Chinese government or the Chinese to alleviate or eradicate the disease." This statement is unfortunately true. But it is true because the Chinese have not understood the nature of the danger or the method of its control, resembling in this regard the people of the southern United States, prior to the agitation of the past few years. As soon as the resultant benefits of action can be made clear to them, the Chinese can be counted on to act.

SURVEYS IN HUNAN (1914-1916)

Soon after my attention was called to the foregoing report on hookworm in foreign countries, I sought an interview with the director general of the International Health Commission, and it was largely due to his practical suggestions that plans were laid, early in 1913, for a comprehensive survey of hookworm infection in Hunan province. As a first step in carrying this out, Dr. A. C. Reed of the staff of Yale Hospital at Changsha, the provincial capital, was detailed to begin investigations at the Pinghsiang Colliery, one of the largest mines in China. This colliery is 90 miles from Changsha, just across the border from Hunan, in the province of Kiangsi. Its commercial relations with the rest of the country are carried on by way of Changsha, which lies in the same Central China valley. Reed[3] found a general incidence of 81.6 per cent. among all workers at the mining establishment; among those who worked underground the infection rate was 90.2 per cent., a figure that was probably minimal, as it is likely that the true incidence approached 100 per cent.

A preliminary survey[4] made in the city of Changsha during the same year, 1914, covering servants, students and others, showed a general infection rate for hookworm of 11.6 per cent., a figure which, again, must be regarded as minimal.

These reports made it clear that uncinariasis was as much of a menace in the mines and in the general urban population of Central China as in similar groups elsewhere in the world; it remained to be shown whether it was as prevalent in agricultural districts and in mines other than collieries.

I had some communication with the director general of the International Health Commission and, as a result, in the summer of 1915, this commission, after making an appropriation to aid in extending the survey, asked me to arrange for men to undertake the work.

During the autumn of 1915 and the winter following, the attempt of Yuan Shih-kai to become emperor was followed by political disturbances throughout all South China, making it impossible to extend the survey in Hunan over as wide an area as originally planned. However, during this time, and in the summer of 1916, observations were made in the agricultural district of Changteh, in the north of Hunan, far removed from the mining areas; and a careful survey was made in the summer of 1916 at Sinhwa, an active antimony mining district in the center of the province. Here, it was possible to study the spread of hookworm from an agricultural to a mining group of workers, and to determine its incidence under conditions differing both geologically and meteorologically from those found elsewhere in Hunan. The studies at Changteh were carried on by Dr. G. F. Tootell, and those at Sinhwa by Dr. W. S. Chow; the latter's full report (Hookworm Investigation in the Antimony Mines of Sinhwa, Hunan Province, China) will be published separately.

These four distinct surveys (Changsha, Changteh, Pinghsiang and Sinhwa) made in as many separate districts to the north, east and west of the provincial capital, may now be summarized and discussed with a view to the light they throw on methods for the eradication of hookworm and the even more fundamental problem of changing Chinese methods of sewage disposal.

TABLE 1.—GEOGRAPHIC DISTRIBUTION OF HOOKWORM IN HUNAN

(All classes of people and both sexes)

City	Number Examined	Hookworm Present	Hookworm Incidence, Per Cent.
Changsha	120	14	11.66
Changteh	739	113	15.29
Pinghsiang	272	222	81.62
Sinhwa	210	27	12.86
Totals	1,341	376	28.04

The results in Changsha, Changteh and Sinhwa, as seen in Table 1, approximate one another very closely, the total of 1,069 cases examined in these three districts showing hookworm present in 154, an incidence of 14.4 per cent., a figure only slightly higher than that obtained in Sinhwa and Changsha, and but slightly lower than that at Changteh. The great disparity of the Pinghsiang figures arises from the fact that 225 of the 272 cases were found among underground workers, among whom indiscriminate defecation furnished abundant opportunity for infection through the feet. Other coolies at Pinghsiang, working in the washing plant above ground, showed a 57 per cent. incidence; while still others, in the machine shops, showed but 27 per cent. Even if we exclude the Pinghsiang returns, we find an incidence of 14.4 per cent. in a general population, somewhat predominantly agricultural; in other words, one seventh of the population is suffering from an infection, the eradication of which, in many other parts of the world, has been quickly followed by striking improvement in the physical and moral well-being of the individuals concerned.

As indicated in the comment on Table 1, the Pinghsiang figures, for special reasons, should be considered apart from the others. We have there a typical deep mine whose main adit penetrates the mountain side to a depth of a mile and a half. The workers in these depths are on long shifts, have no sanitary conveniences, and the heat and humidity are considerable.

2. Hookworm Infection in Foreign Countries, 1911, p. 57.
3. Reed: Am. Jour. Pub. Health, 1914, **4**, 1136.
4. Reed: China Med. Jour., 1914, **28**, 263.

Such conditions are ideal for the spread of hookworm. At Sinhwa, on the other hand, the mines are exceedingly superficial, not penetrating at any point over 100 feet, with ready access to the surface at all times, with little humidity and with a very moderate temperature. The figures seem to indicate that, if the agricultural workers from among whom the mining forces were recruited were originally infected with hookworm, the meteorological and other conditions in the mines were such as to permit a rapid reduction in the incidence of infection.

We note in Table 2 that next to miners, farmers constitute the second group in which a high incidence of hookworm was observed. This was true throughout

TABLE 2.—OCCUPATIONAL INCIDENCE OF HOOKWORM INFECTION IN HUNAN

City	Number Examined	Hookworm Present	Incidence, Per Cent.
Miners:			
Changsha			
Changteh			
Pinghsiang	225	203	90.22
Sinhwa	63	4	6.35
Totals	288	207	71.86
Other Coolies:			
Changsha	31	5	16.13
Changteh	...	...	.....
Pinghsiang	30	14	46.67
Sinhwa	86	6	6.98
Totals	147	25	17.00
Tradesmen:			
Changsha	40	3	7.50
Changteh	5	1	20.00
Pinghsiang	..	..	.....
Sinhwa	12	3	25.00
Totals	57	7	12.28
Scholars:			
Changsha	27	2	7.47
Changteh	..	..	.....
Pinghsiang	..	..	.....
Sinhwa	..	..	.....
Totals	27	2	7.47
Farmers:			
Changsha	5	2	40.00
Changteh	17	8	47.06
Pinghsiang	..	..	.....
Sinhwa	17	12	70.59
Totals	39	22	56.41
Boatmen:			
Changsha	3	1	33.33
Changteh	..	..	.....
Pinghsiang	..	..	.....
Sinhwa	..	..	.....
Totals	3	1	33.33
Miscellaneous:			
Changsha	14	1	7.14
Changteh	17	4	23.53
Pinghsiang	17	5	29.41
Sinhwa	32	2	6.25
Totals	80	12	15.00
Totals, four cities:			
Analyzed occupations	641	276	43.06
Or, excluding all miners	353	69	19.55
Or, excluding miners and farm hands	314	47	14.97

Hunan, but particularly so at the Sinhwa mines, where the mine workers themselves showed a low rate. The high percentage among the Sinhwa farmers may possibly be due to the greater poverty of the rural population there, with consequently less protection of the feet and legs.

TABLE 3.—HOOKWORM INCIDENCE BY SEXES IN HUNAN

City	Number Examined		Hookworm Present		Incidence, Per Cent.	
	Male	Female	Male	Female	Male	Female
Changsha	86	34	13	1	15.12	2.94
Changteh*	22	11	9	3	40.91	27.27
Totals	108	45	22	4	20.38	8.89

* Observations made in territory known to be infected.

In still another series of 700 cases reported from Changteh, 100, or 14.29 per cent., were found infected. Of those infected, 90 per cent. were males and 10 per cent females. Reed[4] calls attention to the fact that the difference in the manner of living is enough to explain the widely different percentage in the two sexes. A Chinese woman's feet are so cramped, while bound, as to limit locomotion, and yet the removal of the bandage removes from the foot its necessary support. Limited locomotion and constant protection by bandages unquestionably save many women from skin infection. Conversely, constant exposure of the bared feet and legs, such as occurs while farming or working on boats, accounts for the higher infection rate in males.

In one of the Changsha cases, included in Table 4, *Schistosoma japonica* was present. This fluke is very common in certain districts of Hunan, notably Siangyin and Yochow. The incidence rate given for *Ascaris* (75.08 per cent.) is certainly not exaggerated. In a recent invesigation of fifty consecutive stools from a boys' mission school in Changsha, where food and sanitary conditions are as nearly perfect as can be found in the simple school life of China, well over 80 per cent. were found infected with the eggs of *Ascaris*. I believe this figure represents a common incidence in Hunan. After all, the fundamental question in connection with infection by animal parasites concerns their morbid significance. As found in China, are they directly or indirectly productive of ill health, or is their presence incidental and seldom pathologic? The Chinese believe it is beneficial to have a few roundworms present in the system, and but few Western physicians practicing in China believe that *Ascaris* can cause serious trouble. What would be the hemoglobin index, the blood pressure, blood counts and opsonic index in persons freed from parasites, as compared with those infected, but in other respects similar? Light must be shed on these matters.

SOIL POLLUTION AND HOOKWORM

The reports from Pinghsiang and Sinhwa clearly show that indiscriminate defecation in the mines is not prevented. This single factor would suffice to account for infection contracted within the mines. Outside of the mines, however, other factors must be sought, for such indiscriminate defecation is not common. Males use the public privy and females use a commode the contents of which are later washed out and emptied into the public privy. To one of the factors prevailing outside of the mines, namely, the fertilizing of arable ground with appropriate dilutions of human excrement, reference has already been made. Containing, as this material does, all manner of parasitic ova and larval forms, the heavy incidence of hookworm among farm hands (Table 2) must be in large measure due to infection through the feet, as they come in contact with the contaminated soil. Tootell, from Changteh, reports that laborers wearing no shoes had a much higher incidence than laborers with shoes. Farmers in Hunan work either barefooted or with simple straw sandals the soles of which are certainly not impermeable to the moist soil, and afford no protection to the dorsum of the foot.

Another factor is carelessness in transportation of the nightsoil buckets from city to suburb and country. One has to walk in the train of a group of carriers to realize how the constant drip-drip from the buckets must be infecting the soil. Every time a passer-by accidentally jostles a carrier, a little more is spilled; and, not infrequently, one comes on a scene of wreckage marking the spot where overstrain has caused rup-

ture and total collapse of the bucket itself. Obviously, this type of soil pollution occurs along the paths from the city to the country and through the fields, endangering all who with unprotected feet traverse these routes.

Again, after the water standing in fields and gardens has had time to become heavily infected, it flows on into another pool, soon reaching some little stream, contaminating both its waters and the soil of its banks, thus bringing the hookworm menace close to the feet, the legs and even the arms of boat hands as they work about their little craft. Here we have a third mode of infection.

THE NATURE OF THE HOOKWORM PROBLEM

We now see that the problem of hookworm involves the whole problem of the use of nightsoil as a fertilizer in fields and gardens, with the consequent contamination of streams and their shores; the problem of sanitation within mines; and, in a more general way, the question of the net morbid influence of hookworm existing, as it does everywhere, concurrently with tuberculosis, syphilis and infection with other animal parasites. While these factors seem wholly different, there are many, after all, that relate the problem of hookworm in China quite closely to the same problem in America. For, however direct and frontal the attack on it may be in America, by dispensary treatment or intensive method, there must always be a deeper, if more indirect, attack by fighting the evil of the insanitary latrine. It is just as true of China as of America, that "curing persons of hookworm infection is of little value unless steps are taken to prevent reinfection."[5] The ultimate problem in China may be stated in terms that do not include the actual "hookworm." It is, "to find a satisfactory method for the disposal of sewage at the farm home, one which the people in rural communities may be brought to adopt and to carry out, and one which will prove to be safe in actual experience under the conditions which prevail in these communities."[5] The only difference between the interpretation of this statement in America and in China is that the word "disposal" would connote in America merely the thought of getting rid of the material; while in China it would mean the utilizing of the nightsoil, after its removal from the latrine buckets.

TABLE 4.—COMPARISON OF INCIDENCE OF HOOKWORM AND OTHER WORMS

City	Number Examined	Ascaris Infections		Trichocephalus		Hookworm	
		Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
Changsha	120	73	60.83	11	9.17	14	11.66
Changteh	739	No report	No report	No report	No report	113	15.29
Pinghsiang	272	172	63.24	20	7.35	222	81.62
Sinhwa	210	207	98.57	22	10.48	27	12.86
Totals 4 cities	1,341	...	.....	..	.....	376	28.04
Totals 3 cities	602	452	75.08	53	8.80	...	.....

THE SOLUTION OF THE HOOKWORM PROBLEM

Stated briefly, the solution of the hookworm problem for Hunan and for all China may be summed up in three words, survey, suppression and substitution.

Survey.—The extent of the problem must be determined. Practically all the work hitherto done in Hunan comes under this head. We know now that the incidence varies all the way from 6 per cent. in one group of workers, at a certain place, to 90 per cent. in another group, elsewhere. We know that miners and farmers are the two classes most subject to infection, although later inquiry may possibly show that boatmen are also among the heavily infected groups. Further surveys, both extensive and intensive, are urgently needed both in Hunan and elsewhere in China; but they must be equipped to go farther than merely to record incidence. They must try to determine the physical and economic significance of hookworm disease in the presence of almost universal infection with either tuberculosis or syphilis. They must try to gage its effect on the human economy as compared with that of other animal parasites and bacterial infection.

Further, every survey must frankly recognize the difficulties to be overcome. In China, these come largely under the heads of ignorance, custom, lack of capacity for sustained effort, and financial stringency. The ignorance is natural. Even in Western lands, the word "hookworm" was not in current use a few years ago, and in China it is not strange that so few understand what infection is; moreover, among the Chinese coolies, the persons most seriously concerned in the present discussion, indifference is frequently an outgrowth of ignorance. If not absolutely indifferent to the hygienic instruction given, they are at least apt to look with suspicion on any new proposal, for fear it shall deprive them of something they regard as theirs by right, or for fear it shall prove to be a foreign idea likely to do them harm. It is both financially profitable to market nightsoil and agriculturally indispensable to use human excrement for fertilization purposes in a land where horses and cows are few. Necessity is laid on the scientist and economist to conserve whatever he can of an ancient custom, at the same time that he seeks to eliminate the dangers. More of a difficulty than custom, however, is the absence of persistent effort. China has many monuments which commemorate initial zeal, followed by a faltering by the wayside, and an eventual collapse or precipitate flight. There is need for a deep realization of the people's backwardness in handling sanitary matters, and a determination to continue in the effort to construct for them a system on which their national physical well-being may be firmly established. China's wealth is, as yet, largely potential and underground. The vast majority of the population lives from hand to mouth, and human life is held in such slight esteem that little effort is made to conserve it. It follows, therefore, that very little public money, or even private wealth, can be counted on for safeguarding the health of the community.

Suppression.—Here are to be included all available methods for eradicating or alleviating hookworm disease. The recommendations with which Reed and Chow end their respective reports can be summed up in two words, education and isolation.

5. Second Annual Report, International Health Commission, 1916.

(*a*) Education: The order in which the education proceeds matters little, so long as we see to it that the mine operator or farm owner learns of the danger from hookworm both to his employee and to himself, and of the economic gain sure to follow its eradication; that foremen are taught adequate methods of oversight and are compelled to assume definite responsibility for sanitary conditions within assigned areas, and that the laborer himself, whether farm hand or miner, is plainly, directly and repeatedly shown how to avoid infection.

But we may go further than Reed and Chow and insist that until practical sanitary instruction is introduced into all schools, little improvement can be expected. Ordinary hygiene is being taught more commonly than heretofore, but this must be supplemented, especially in the agricultural and mining districts, by simple illustrated lectures and the distribution of literature about hookworm and other parasites and about the use of the latrine and proper disposal of its contents. Medical colleges, too, must teach not merely physiology and therapeutics; they must reinforce their departments of preventive medicine, so that every student and graduate shall be an apostle of practical sanitation. All possible encouragement must be given to the widespread organization of local bureaus of health, to be under the supervision of the department of police, as in Japan. Nothing can educate either the public or the health officer as conclusively as complete vital statistics. At present, no one in China knows what people die of or what the death rate is. The bureaus of health must be educated to proceed without delay to supply these deficiencies. There is scarcely a doubt that they will welcome every friendly suggestion from institutions or organizations whose aim is known to be of service. In Changsha, for several years past, the staff physicians of the Yale Hospital have held appointment as counselors to the chief of the city bureau of health.

The scientific worker should be so educated as to be able with the least possible loss of time to devise such a substitute or such a modification of the manure the farm hand now has access to as will remove from him the great source of his infection.

(*b*) Isolation: If no coolie were permitted to enter a mine until examined and pronounced free of hookworm, uncinariasis in mines would soon be a dead issue. The same would be true of camps or any estate where communication could be controlled and infected persons isolated for treatment. But for those vast areas of farmland to which nightsoil is brought without control, the problem will remain unsolved so long as the worker has to use for fertilizer feces that contain living ova.

Substitution. — Hookworm will disappear from China only when the method of substitution succeeds — substitution not of something else for human excrement as fertilizer, but of a nightsoil freed in some way of its danger, to take the place of one full of hookworm ova carried directly from the privy to the growing crop long before any process of fermentation has destroyed the ova therein. The solution of this tremendous problem will be greatly accelerated as here and there throughout the land organized investigation can be made to determine, amid varying conditions of soil, temperature and meteorology, how to treat human excrement in order to eliminate the danger of infection for the worker who comes into dermal contact with it, at the same time preserving its value as fertilizer. The mere statement of such a problem for a vast country like China, abounding in superstitions and devoted to the keeping up of traditional custom, is almost alarming. And yet, at a time like this, when the traders of the West are extending their commercial interests throughout China for the sake of profit to the citizens of their respective lands, is there not a call for unselfish service as well? It is a call for funds and for workers to grapple with one of the world's big problems of sanitation. And the local authorities will help. Throughout the summer of 1916, while the survey was in progress in Sinhwa and another at Changteh, hookworm was a prominent topic of conversation at not a few official dinners, and government officials, from the highest down, when they learned of the danger of hookworm and of the economic gain likely to follow its suppression, gave assurance of their financial and moral support to any reasonable, practical measure. The governor of Hunan, himself deeply interested in the whole campaign, offered to set aside a suitable tract of land for experimental purposes; and his example was followed by several wealthy landowners. The government bureau of mines, and all others who have been approached, say frankly that they wish guidance in organizing and studying methods of hookworm control. They wish their mines and properties cleared of hookworm, and will cooperate in bringing this about. Such signs are full of hope. They mean that, given such cooperation as the International Health Board has been able to extend to other countires, the local Chinese authorities will not be behind those of other nations in working both for the eradication of the hookworm menace and for a gradual reform of the entire system of sewage disposal, that is even more fundamental than the problem of mere hookworm infection.

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THE RELATION OF LOW BLOOD PRESSURE TO A FATAL TERMINATION IN TRAUMATIC SHOCK*

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It is desirable, in view of the cooperation on the part of several of the physiologic laboratories of the United States in the work on the nature and treatment of traumatic shock arising from war conditions, that the results of such work be made public as early as possible in brief communications. Such is our reason for the form of the present note.

The experimental facts, in part unpublished and in part drawn from previous work, are as follows:

1. When the cells of the brain and medulla oblongata are deprived of blood for a period of from ten to twenty minutes, a change in the staining reactions of the cells is demonstrable if the brain and upper portion of the spinal cord are removed some minutes after the circulation to the head has been restored.[1]

2. There is a greater susceptibility of these previously damaged cells to strychnin. Paralysis and fail-

* From the Department of Physiology, Columbia University.
1. Gomez and Pike: Jour. Exper. Med., 1909, **11**, 257-265.

ure of function from administration of strychnin during the resuscitation period occur more readily in the anterior (cephalic) portion of the central nervous system, which has been deprived of blood for a time, than in the posterior portion through which the circulation has been maintained continuously.[2]

3. Such damaged nerve cells will recover when a proper supply of oxygenated blood is provided. Respiration, blood pressure and pulse rate soon become normal.[2]

4. Transection of the spinal cord in the upper thoracic region may be done without fatal results some hours after the circulation to the brain has been restored. Transection of the spinal cord at this level in animals with brain intact is not ordinarily fatal.

5. Transection of the spinal cord is fatal if done soon after the reestablishment of the cerebral circulation, or if done soon after the return of the respiration and the blood pressure to their normal conditions. Death follows in from five minutes to an hour.[3]

6. Section of the spinal cord in the upper thoracic level lowers blood pressure. Increasing blood pressure by clamping or ligating the descending aorta just above the diaphragm will restore the failing encephalic (including bulbar) functions, if the increase is brought about soon enough.

7. In cases of severe damage to the cells of the central nervous system, no return of function, or only an extremely slow and imperfect return, is possible so long as the blood pressure remains low. The conditions may be improved by increasing the blood pressure artificially. The conditions become worse when a fall of blood pressure is brought about by some means which does not involve transection of the spinal cord.

It is true that the conditions produced in our animals do not, at first sight at least, coincide in all respects with the conditions as they are supposed to exist in traumatic shock in which the trauma does not involve the central nervous system directly, and the objection may at once be raised that conclusions drawn from such a series of experiments cannot be transferred without modification to apply to conditions in a traumatic shock. But whatever the other conditions in traumatic shock may be, we find strong evidence for the view that some physical damage within the central nervous system must be included as one of them. Such damage may or may not be demonstrable histologically, but a considerable personal experience with conditions in which low blood pressure and diminished blood supply to certain regions of the body, added to the experimental facts contained in an extensive literature on these subjects, have led us to the conclusion that neither low blood pressure of the magnitudes recorded in cases of surgical or traumatic shock, nor the diminished supply of blood to the brain is sufficient in itself to produce such speedy death as is often reported in surgical or traumatic shock. What the nature of this injury to the central nervous system is we shall not now attempt to say. Porter's[4] views on fat embolism as the cause of surgical or traumatic shock are suggestive in this connection. The profound shock sometimes seen in caisson disease, in which air embolism is a common occurrence, is in line with Porter's observations.

There is no question in our minds that the general systemic blood pressure of mammals is higher than is strictly necessary for the maintenance of the life of uninjured cells. But injured cells require a better blood supply for their restoration than uninjured cells do for mere maintenance. There is, then, a possibility of a factor of safety in the blood pressure in the organism in health. There is a sufficient margin of safety to restore injured cells to a condition approaching normal if the injury has not been too great.

The general conclusion which we have reached as the result of a consideration of all the conditions known to us is that the general conditions of resuscitation[5] apply also in surgical or traumatic shock. Some means of raising the systemic blood pressure is necessary in the treatment of surgical shock. The laboratory worker has several such means at his disposal, but none of them are susceptible of easy and successful clinical application. Experiments looking toward the development of some method of raising blood pressure which will be susceptible of clinical application are now in progress.

2. Stewart, et al.: Jour. Exper. Med., 1906, **8**, 309-310.
3. Pike: Am. Jour. Physiol., 1912, **30**, 436-450.
4. Porter: Boston Med. and Surg. Jour., 1917, **176**, 248.

A TYPHOID CARRIER PROBLEM

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In the first week of April, 1917, I was delegated to investigate an intermittent outbreak of typhoid fever in Bakersfield, Kern County, Calif. The records of the health department of that city showed that for a twelvemonth, beginning June, 1916, cases of typhoid fever had appeared scattered over the city, both sexes had been attacked, and the age range had been from 3 to 46 years. That the outbreak was intermittent was evidenced by the total absence of typhoid in the city during September, October, November and December, 1916. In all, there had occurred twenty-two cases, with a mortality of 9 per cent.

The municipal water supply had been examined from time to time by the state bureau of sanitary engineering, and the typhoid incidence could not be connected with it. The matter of shellfish and of ice cream was also investigated with negative findings. Suspicion was therefore naturally directed toward the milk supply of the city.

There were twenty-five dairies supplying the people of Bakersfield, not including numerous producers who owned one or at most two cows and supplied their own family and the families of neighbors in their immediate vicinity. Furthermore, during the twelvemonth, the families in which one or more cases of typhoid had developed had, like other families in the city, repeatedly changed from one dairy to another or even to a neighbor's supply, when purchasing milk for domestic consumption. To ascertain definitely the name of the dairyman who had been supplying a family during the incubative period of the typhoid illness in that family was, therefore, an exceedingly difficult task.

Much direct and cross examination of members of the families in which typhoid had occurred brought forth a mass of confusing and conflicting evidence. This evidence was carefully weighed, and all irrelevant and extremely doubtful data ruled out by the investigator. The result left nine dairies under suspicion. These nine dairies were then investigated, and the result left three dairies still under suspicion. The evidence thus far gained, when taken in conjunction with the case report, showed that from June to September,

5. Pike, Guthrie and Stewart: Jour. Exper. Med., 1908, **10**, 417-418.

1916, all cases of typhoid in Bakersfield directed suspicion to Partnership Dairy A + B as their source of infection. At this time, however, an incident occurred in the ordinary pursuit of business which, had it not occurred, would have greatly simplified the typhoid problem. On or about Sept. 1, 1916, the partnership was voluntarily and amicably dissolved. Dairyman A returned to his original sources of supply, and Dairyman B to his. Dairy C did not come under suspicion until February 1 of the following year.

Following the dissolution of the partnership of A and B, the city remained totally free from typhoid until January, 1917, when five new cases appeared in the city, all directing suspicion to Dairy B. Both Dairy A and Dairy C had continued operating independently all this time without the occurrence of typhoid among their respective customers. What was the natural inference to be drawn from the situation as it now stood? That in Dairy B probably lay the source of all the typhoid infection to date. This inference was based on the record of typhoid in the city when Dairy B was operating in partnership with Dairy A, and with the record of typhoid in the city when Dairy B was operating alone.

The next step in solving the problem was an investigation of Dairy B. Its dairy farm was inspected, its water supply examined and found unsafe for domestic use, and Widal and feces tests were made of all persons connected with the dairy. All proved negative, however, save that in the stool of the owner an organism was obtained giving typical typhoid reactions on all mediums but not agglutinating with typhoid serum (Parke, Davis and State Hygienic Polyvalent), a gram-negative bacillus, slightly shorter than the typhoid bacillus.

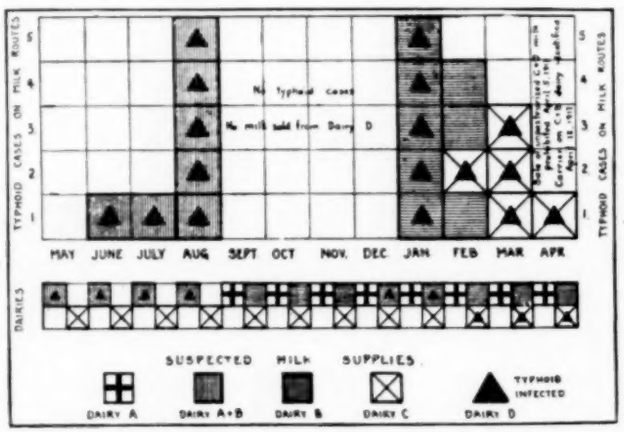

Chart showing by months the number of typhoid cases, the typhoid-infected dairies, and the sale of suspected milk. Dairy A+B was infected by D during May, June, July and August, as shown by the symbol for D inscribed within the symbol for Dairy A+B. There was no further sale of D milk until mid-December, as shown by the absence of the symbol for D until that time. Thereafter the symbol for D, inscribed within the symbols for Dairies B and C, respectively, show typhoid contamination of the milk of those dairies by the D supply. It will also be noted that wherever the symbol D is not inscribed within a dairy symbol, the milk from that dairy remained uniformly free from typhoid.

This necessarily was open to suspicion, and yet, on the other hand, no one in or about the dairy farm had been ill with typhoid, although the owner, his wife and three young children, as well as two dairy workers, had used and still were using the local well water supply and raw milk for domestic use. None in this group had ever had typhoid fever, nor had any received antityphoid vaccination.

The situation remained unaltered. Our inference that Dairy B was the source of typhoid infection had not been substantiated by the evidence thus far in hand. Some factor mysteriously entered into and then made its sudden exit from the situation. For some as yet unrevealed reason this factor had apparently lain dormant from mid-August to mid-December, if the typhoid incubative period is remembered in connection with the incidence of cases in the city.

The books of Dairy B were again searched for the missing link of ineffectivity, but without result. Every consideration was shown by the proprietors, every possible aid rendered, but we were unwittingly baffled in our efforts to arrive at a reasonable solution of the problem in hand.

The month of February, 1917, started on its typhoid career with the appearance of a case on the 12th ascribed to Dairy B. On the 15th, 21st and 26th, respectively, three more cases of typhoid occurred. Those of the 21st and 26th were ascribed to Dairy B, but that of the 15th was ascribed to one of two sources: (1) Dairy C, which had had a typhoid-free record for at least the four previous years, and (2) another dairy, which I shall call E. The local health authorities had been tireless in their efforts to get at the source of the outbreak without avail. They had erred, however, in setting down the case of February 15 as having had its source in Dairy B; hence when in March there occurred three more cases in the city they also counted them as against Dairy B.

An investigation by the state's agent in April resulted in a concurrence of opinion that the cases whose dates of onset had been, respectively, February 15, March 1, 5 and 9 and also that of April 4, 1917, were rather to be ascribed to Dairy C, which up to that time, however, had had no typhoid among its customers for at least four years previously. What now was the situation? The first cases had occurred among the customers of Partnership Dairy A + B. Following dissolution of this partnership, there had been no further incidence of typhoid in the city for four months — then typhoid occurred solely among the customers of Dairy B, and in March and April not among the customers of either Dairy A or Dairy B but in Dairy C. The presence of a typhoid carrier could therefore be reasonably assumed. The inference could readily be made that this carrier had been migratory—that he or she may first have been employed in Dairy A + B, then have left the city or have been out of employment or have made a change in occupation for five months, and thereafter have obtained employment in Dairy B and now in Dairy C. The inference of five months' absence from the city or unemployment or change of employment by the carrier was in line with the absence of typhoid in the city during September, October, November and December.

The situation had now resolved itself to a detection of a carrier in Dairy C. The migratory habits of dairy employees were well known. Such data as could be obtained relative to dairy employees in connection with the dairies under suspicion was found sadly lacking in many of the most important details.

It was ascertained that Dairy C was located at a little distance from the city, and inquiry was therefore made of the county health officer as to the incidence of typhoid at the dairy and within a 10 mile radius of the city. He stated that no recent typhoid had been reported within this area.

Dairy C was next visited, and after a conference with the proprietor and his family a clue to the probable missing link of infectivity was found, and as later laboratory tests showed, the carrier was definitely established. A situation in the city which had proved replete with complex factors had at last been relieved. It was found that the source of the series of typhoid cases which had occurred in the city between June, 1916, and April 4, 1917, was the milk supply of a small producer, D, who had intermittently sold bottled milk to the various other dairies from April, 1916, to Feb. 1, 1917, at which later time he had purchased the entire interests of Dairy C, and had merged its milk supply with that of his own cows and had continued to operate under the name of Dairy C. The evidence in support of this is as follows:

1. From April, 1916, to mid-August, 1916, D had sold all his milk to the Partnership Dairy A + B, with the result that all typhoid cases which occurred during that period were among Dairy A + B customers.

2. D did not produce or sell any milk from mid-August to mid-December, 1916. No typhoid cases occurred in the city during September, October, November and December.

3. D again sold to Dairy B intermittently from mid-December to Feb. 1, 1917, and typhoid cases occurred in the city intermittently as to time of onset and all among Dairy B customers.

4. Dairy C had maintained a typhoid-free record for at least four years among its customers previous to being bought up, Feb. 1, 1917, and merged and operated by D under the name "Dairy C," when new cases of typhoid arising in the city could be definitely ascribed to it.

5. The family of D gave a positive history of past typhoid infection. Mr. D had had typhoid forty-eight years before, and once since that time. Mrs. D had had typhoid twenty-eight years before, and once since that time. One son and one daughter, now married and living in distant parts of the state, had had typhoid several years before. Mrs. D's father, brother and nephew had died of typhoid.

6. The milk supplied by D was bottled at his dairy farm by himself, his wife and three daughters (the three daughters have never had typhoid). It was said that prior to Feb. 1, 1917, D had never had a milk route, and it was not known to the health authorities that he was producing milk for public consumption.

7. The state hygienic laboratory reported, April 12, 1917, that the feces specimen from Mrs. D had proved positive, morphologically, culturally and serologically, for typhoid bacilli. This proved Mrs. D a typhoid carrier.

CONCLUSIONS

The lessons to be derived from this investigation are:

Although all the milk suspected in connection with this outbreak was Grade A unpasteurized milk, it was not a safe milk, as the evidence clearly shows.

To insure safety, two measures already adopted by some municipalities are imperative: the licensing of persons who are connected in any manner with the handling of public or private milk supplies only after thorough and repeated blood and feces tests to exclude the typhoid carrier, and the penalizing of any person who shall violate such ordinance.

Still another lesson, and this more especially for the laity, is that before investing means and time in the establishment of a dairy farm and dairy route, it would be well first to ascertain one's qualifications from the standpoint of health in connection therewith or face a possible alternative of being declared a typhoid carrier by legal authority and having to sell out at a loss, because of inability to engage further in the production or handling of milk and its products.

Then again, there is the lesson for the community that it so support its local health department financially as well as legally that ample time may be devoted to the recording of all necessary data in relation to dairy and milk inspection and the compilation of all sources and changes in the milk supply of the city.

The importance of making an immediate memorandum of the family supply of milk by the attending physician in any suspected case of typhoid is also to be emphasized.

CONVENIENT DEVICES FOR MELTING PARAFFIN FOR BURNS*

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One of the main drawbacks in the paraffin method is the inconvenience of melting the paraffin and keeping it melted at the proper temperature, between 55 and 60 C. This is almost impossible by direct heat, since this would tend to overheat, and would also cool too rapidly. The device ordinarily used is a double boiler (cereal boiler). This answers, but is far from ideal. For simple dressings, as in office practice, it is inconvenient. With extensive dressings, as in shop practice, there is the further difficulty that the paraffin will either overheat or cool unduly while the attention of the surgeon is centered on the patient. The temperature could, of course, be kept constant by the ordinary scientific thermostats, but these are not practical, since they are too cumbersome, are immovable and are easily injured. Under the stress of war practice, the difficulties must be still greater.

I have experimented with two devices which are simple and appear practical: an electrical "food warmer" for office use; and an "acetate thermostat" for shop and field practice.

1. Food Warmer: This is the pint size sold in the stores for the warming of babies' milk bottles. When filled one half or two thirds with paraffin of melting point, 47.5 C., it can be used in three minutes after the current is turned on. If the current is then turned off for two minutes, it will have just the right temperature. It will remain usably melted for ten minutes without current, when a crust begins to form; it can then be again made usable by turning on the current for a few moments.

This should be particularly useful when the paraffin is used only occasionally, as in ordinary office practice.

Table 1 gives the data of an actual experiment.

2. Acetate Thermostat: Sodium acetate has the curious property of melting and congealing at just about the temperature that is needed for the application of the paraffin.[1] It retains this temperature constant for a long time while passing from the liquid to

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* Research partly supported by a grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

1. This property was brought to my attention by a report of the Chemical Laboratory of the American Medical Association (Annual Reports of the Chemical Laboratory of the American Medical Association, **9**, 105) on sodium acetate in warming bottles.

the solid state. For instance, some sodium acetate melted in a crucible remained at the temperature of 58 C. for an hour and ten minutes without the application of further heat.

TABLE 1.—PARAFFIN IN FOOD WARMER

Current	Temperature of the Paraffin (Degrees C.)	Remarks
On for 3 min.....	65.5	Nearly completely melted, except a crust around the margin; center usable, but rather hot
Current turned off		
3 min.	58.5	
9 min.	50	Still usable
20 min.	48	Pellicle of solid paraffin
36 min.	47.5	Not usable; mostly solid
Current turned on		
2 min.	66.5	Mostly melted; usable, but hot
Current turned off		
13 min.	48	Pellicle; just usable

This is shown by the following data:

Two nickel crucibles of the same size were filled, the one with 40 c.c. of water, the other with sodium acetate. They were heated to 68.5 C. The heat was then withdrawn, and the temperature noted from time to time as cooling proceeded (Table 2).

TABLE 2.—COOLING OF SODIUM ACETATE

Time (Minutes) After Removal of the Heat	Temperature of Sodium Acetate (Degrees C.)	Temperature of Water (Degrees C.)
1	66.8	66.5
6	61	54.5
10½	56.5	48.5
13	56.5	45
15	57.8	
17	58	41.5
21	58	37.5
26	58	31.5
60	58	26.5
75	57	25
90	51 (solid)	24

When sodium acetate is used to fill a pot surrounding a vessel containing paraffin, it keeps the paraffin melted at just the right temperature for application for three hours after the pot has been removed from the fire. If in the meantime it has been set into a fireless cooker, the time could of course have been further prolonged.

The advantages of this will be appreciated at once: the paraffin needs no further attention after it has been melted, until three hours afterward, and then it can be quickly reheated. The paraffin pot can be carried to any part of the shop, or in an ambulance to the dressing station. The sodium acetate is syrupy, and does not easily spill; it does not evaporate, so that no attention is required in this direction; indeed, the outer and inner vessels could probably be joined by solder.

TABLE 3.—PARAFFIN IN ACETATE THERMOSTAT

The pot was removed from the fire at 10:20 a. m. and set on the table.

Time After Removal from Fire	Temperature of the Melted Paraffin (Degrees C.)	Remarks
6 minutes	59	Ideal for use
16 minutes	58	
28 minutes	55	
45 minutes	54.5	
2 hours	53.5	
2 hours, 45 minutes.....	50	Faint film; usable
3 hours	48.5	Continuous film; just usable
3 hours, 15 minutes.....	48	Partly liquid; but not usable
4 hours	47.5	Mostly solid; not usable

The device that I am using, which appears especially practical, consists of an ordinary glue pot of size O. The outer pot is filled two thirds with official sodium acetate (requiring probably something over a pound). The inner vessel holds about a pound of paraffin.

In Table 3 are the data of an experiment, showing the rate of cooling.

Clinical Notes, Suggestions, and New Instruments

ACUTE DIABETES WITH ENORMOUS ELIMINATION OF NITROGEN: REPORT OF CASE WITH AT LEAST TEMPORARY RECOVERY*

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This case, first, is an excellent example of a certain type of acute diabetes which has received inadequate attention in the literature; secondly, it is of considerable interest on account of the almost unprecedented elimination of nitrogen during the early and fasting days after admission; thirdly, the high figures of ketone elimination deserve mention and emphasize the fallacy of basing prognosis solely on the degree of elimination, and finally, the dietetic and therapeutic measures pursued with prompt success are worthy of brief comment.

REPORT OF CASE

History.—S. W., man, aged 21, Jew, was admitted to the medical division of the University Hospital, Jan. 7, 1917. He stated that until four weeks before he had been in perfect health. Acute superficial pain then developed along the left costal margin, resembling needles being stuck into the skin. Shortly after the onset of the pains, he developed tremendous thirst and also began to lose weight. He stated that he had lost 18 pounds in the four weeks. Polyuria and frequency of urination developed, and the patient also complained of some slight cough and dyspnea. He had never been ill before.

Previous to this illness he drank about five glasses of beer a day. Otherwise his habits and occupation are of no importance. It was difficult to elicit this history, and no further information concerning the onset of his condition could be obtained.

Examination.—The patient was slender, with wasted musculature and a dry skin. He was markedly somnolent. There was a strong "acetone" odor to the breath. Thoracic and abdominal examinations were negative. The blood pressure was: systolic, 100; diastolic, 60. Urinanalysis revealed the urine a corn color; a light flocculent sediment; specific gravity, 1.035; acid; a trace of albumin; sugar present; acetone and diacetic acid present; no bilirubin or urobilin. Microscopic examination revealed light and dark granular casts, occasional leukocytes, and calcium oxalate crystals. Blood count revealed: hemoglobin, 100 per cent.; erythrocytes, 5,100,000; leukocytes, 26,400; differential count: polymorphonuclear neutrophils, 88 per cent.; small lymphocytes, 6 per cent.; large mononuclears, 1 per cent.; transitionals, 5 per cent.

The patient was admitted in the afternoon and received no food after 11 a. m. The next morning he was placed on whisky, coffee and sodium bicarbonate, receiving 56 gm. of soda on this day. He was still somnolent, and the breathing was somewhat deep and slow.

Treatment and Results.—January 9, the patient was not improved. The report from the laboratory, as indicated in the table, revealed the severity of the condition. The patient was kept on the same diet and given 87 gm. of soda, of which 30 gm. were given intravenously. The plasma carbon dioxid reading was 49 volumes per cent.

January 10: The patient's condition was worse. The laboratory reports showed no improvement. The diet was increased by the addition of skimmed milk and oatmeal. Sixty gm. of sodium bicarbonate were given.

January 11: The condition was about the same. The patient still showed slight hyperpnea, and was somnolent. The diet was slightly increased, and 75 gm. of glucose were given. Intravenous injection of 1 liter of a 3 per cent. sodium bicarbonate solution was given. The blood urea nitrogen was 13 mg. per hundred c.c., blood plasma chlorids 5.02 gm. per liter, and blood plasma carbon dioxid content 43 volumes per cent.

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January 12: The patient was better and brighter. No improvement was shown by the laboratory report over the specimen of the preceding day. The carbohydrate of the diet was increased, and the soda continued.

January 13: There was marked improvement. Soda was continued.

January 14: The patient felt better. The report from the laboratory showed improvement.

January 15: The urine was alkaline for the first time. The plasma carbon dioxid reading was 70 volumes per cent. The Wassermann test was negative.

January 19: There was great improvement. The carbohydrate of the diet was gradually reduced, and proteins and fats were increased. The white blood cells numbered 12,900. On this date, edema of the face was noted, and there was also noted a marked increase in weight. This edema was probably a "soda edema," and it disappeared rapidly on reduction of the amount of sodium bicarbonate administered.

January 24: The urine was sugar-free for the first time.

From this time on the patient continued sugar-free with an increasing tolerance for carbohydrate. On discharge, four weeks later, his tolerance permitted the addition of 40 gm. of bread, 50 gm. of potato and 100 gm. of oatmeal to the diet without the appearance of sugar in the urine.

Since discharge, he has been under observation in the outpatient department and has continued to be sugar-free and is gaining weight. His most recent observation was March 19.

LABORATORY DATA

Date, 1917	Intake			Analysis of Urine					Blood Carbon Dioxid, Volume per Cent.	Weight, Kg.
	Carbohydrate, Gm.	Nitrogen, Gm.	Sodium Bicarbonate, Gm.	Amount, C.c.	Reaction	Nitrogen, Gm.	Glucose, Gm.	Beta-Oxybutyric Acid, Gm.		
January 8-9	0	0	56	4,740	Acid	35.5	80.8	69.8	..	51
January 9-10	0	0	87	5,170	Acid	32.6	49.0	83.0	49	
January 10-11	35.0	1.9	60	5,515	Acid	38.9	94.4	82.8		
January 11-12	163.5	6.6	90	6,020	Acid	32.3	182.6	85.6	43	
January 12-13	180.0	4.5	60	6,670	Acid	38.5	306.0	85.6	..	47.4
January 13-14	260.0	11.2	60	6,130	Acid	31.3	330.1	76.0		
January 14-15	195.0	8.6	60	3,940	Acid	25.0	182.0	48.1		
January 15-16	206.0	8.3	60	3,570	Alkaline	18.9	178.2	34.7	70	49.5
January 16-17	205.0	9.4	60	3,020	Alkaline	15.8	143.0	22.2		
January 17-18	184.0	9.4	60	3,250	Alkaline	15.2	168.0	8.5		
January 18-19	186.0	9.7	30	3,770	Alkaline	17.6	139.4	4.0	..	52.2
January 19-20	148.0	10.3	20	3,920	Alkaline	14.1	223.0	5.8		
January 21-22	80.0	14.2	20	3,710	Alkaline	14.8	17.6	4.0		
January 22-23	76.0	9.1	20	3,620	Alkaline	17.2	17.2	2.7	..	46.8
January 23-24	0	0	20	1,120	Alkaline	8.5	0	0.8		

COMMENT

Although the history in this case is indefinite as regards the condition at and preceding the onset of the diabetes, yet there is some suggestion that the early symptoms were due to some acute infection. This is made more probable by the similarity between this case and other cases of acute diabetes following acute infection which have been observed. Such cases usually occur in young persons who have recently been subject to some rather severe acute infection; for example, one of our cases followed scarlet fever and erysipelas. The diabetic symptoms may appear with considerable suddenness, and are rapidly followed by great loss of weight and the symptoms of increasing acidosis. When seen at this stage, the high figures of elimination of nitrogen and of ketonic acids and the general appearance of the patient are apt to lead to a poor prognosis. Further studies, such as the estimation of the carbon dioxid tension of the alveolar air or carbon dioxid content of the blood, however, may show that the degree of acidosis is not so great as the figures of eliminated ketones might suggest, and the results of proper treatment indicate that the prognosis in such cases is better than it might at first glance appear. Under careful treatment, the carbohydrate tolerance is recovered with surprising rapidity and completeness, and the further return to a more or less normal condition is uneventful.

Elimination of Nitrogen.—For the six days after admission, the patient daily eliminated over 31 gm. of nitrogen, the daily average for the six days being 34.8 gm. During this period, the intake as shown in the table was low in nitrogen (24.16 gm.) and the nitrogen loss was therefore extremely great. In the similar case reported by Geyelin and Du Bois,[1] the loss of nitrogen by an acute diabetic, at first on starvation and for eight days after on a moderate nitrogen intake, was enormous (over 281 gm. for the eleven days). They assert that their figures are the highest yet reported for nitrogen elimination under these conditions. Our patient had a higher output for the first six days after admission, and on a fasting treatment his nitrogen loss was even greater than in their case at a corresponding time. This loss of nitrogen represents roughly a loss of about 2½ pounds of flesh per day, if it is assumed that all of the nitrogen came from that source. So far as we know, the figures here reported for this short period are, at least, as high as any on record.

A similar but less prolonged elimination of large quantities of nitrogen has been observed for a few days after admission in a number of our diabetic patients who had been on excessive protein diet before admission. The elimination in such cases continues but a brief period, is not accompanied by loss of weight, and has never been as high as in the present instance.

Elimination of Ketonic Acids.—The figures for the elimination of ketone bodies in this case are high and closely approach those of the case reported by Geyelin and Du Bois. The highest twenty-four hour elimination in our case was 85.6 gm. of beta-oxybutyric acid, while the highest output of ketones in the case reported by Geyelin and Du Bois is 87 gm. of beta-oxybutyric acid.

This degree of elimination is much greater than that seen in many cases which rapidly progress into fatal coma despite our best therapeutic efforts.

Treatment.—This case well exemplifies the value of flexibility in treatment, for no arbitrary outline of treatment can be rigidly applied in every case. In this instance, improvement seemed to commence with the change from a strict starvation treatment to the daily administration of moderate quantities of carbohydrate, and this method was continued until there was a distinct improvement in the acidosis. At the same time, large amounts of sodium bicarbonate were given both by mouth and intravenously.

Once improvement had appeared and the elimination of ketones had somewhat diminished, the carbohydrate of the diet was gradually replaced with protein and fat until the diet became practically our routine carbohydrate-free diet. During this period the urine had become sugar-free and all evidences of acidosis had disappeared.

After the patient had been sugar-free for a short time, carbohydrates were again tentatively added to his diet in small amounts without causing the appearance of the glycosuria. The degree of tolerance exhibited was marked, and on discharge, the patient was receiving such considerable amounts of carbohydrate without glycosuria as to suggest that his tolerance had been restored about to normal. The blood sugar had returned to a normal figure (0.07 per cent.) before discharge.

1. Geyelin, H. R., and Du Bois, E. F.: A Case of Diabetes of Maximum Severity with Marked Improvement, THE JOURNAL A. M. A., May 13, 1916, p. 1532.

A CASE OF TUMOR OF CAROTID BODY

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Tumors of the carotid body are of sufficient rarity to make it seem worth while to report their occurrence. Shipley and

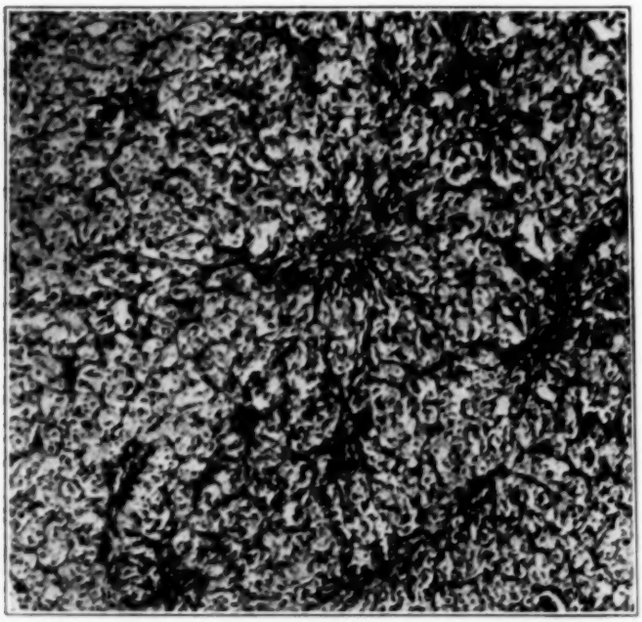

Fig. 1.—Low power photomicrograph showing the general structure of the growth; × 65.

Lynn,[1] in May, 1916, tabulated all the reported cases up to that time, numbering sixty-five, and added their case to those previously reported. The growths and their pathology was thoroughly discussed by Callison and MacKenty[2] in 1911. We wish to add another case to this group of rather interesting tumors:

History.—A. M., Jewess, aged 51, born in Russia, was admitted to the Post-Graduate Hospital, Dec. 6, 1915, with the diagnosis of fibromyoma of the uterus and tumor of the right side of the neck. She stated that she had had a mass in the right side of her neck for at least eight years, and that up to a year ago it had not changed in size, but that since then it had enlarged slowly. It caused her no pain, no difficulty in deglutition, and except for the presence of the mass, no signs or symptoms.

The patient was a stout, healthy-looking woman, with a firm, deep-seated mass on the right side of her neck, at about the level of the hyoid bone, and presenting just anterior to the border of the sternomastoid muscle. It felt lobulated, and was not movable to any degree. There were no signs of any involvement of the adjacent nerves. A definite diagnosis was not made.

Dec. 7, 1916, hysterectomy and appendectomy were done by Dr. Herman J. Boldt, and immediately following, at his request, the tumor of the neck was removed by Dr. Cahill. A curved collar incision was made in one of the wrinkles of the neck, for the woman was quite stout, and the tumor was exposed. It was found to be very vascular, reddish like thyroid, and quite firmly attached to the deeper structures. An attempt was made to deliver the tumor, but this was found impossible. On careful dissection, it was found that the internal jugular vein ran into the mass and seemed to be incorporated with it. The jugular vein was ligated above and below the tumor. It was then possible to dissect the tumor free from the common carotid. It was located between the external and internal carotids, extending down into the bifurcation crotch, where it received a large arterial branch. After the ligation of this branch, the tumor was removed. Just below the tumor was a small round mass resembling a lymph node, which was also removed. On account of the close relation of the tumor to the hypoglossal nerve, the nerve was considerably stretched in the removal. The oozing of blood, until the tumor was removed, was very free. The wound was closed with a small tissue drain.

The patient was in fair condition and made a rapid recovery. Immediately following the operation, she had unilateral paralysis of the tongue and some difficulty in swallowing, but this proved to be only temporary. She was discharged from the hospital, December 24, the wound having completely healed. Unfortunately the patient was lost track of, and all attempts to locate her have failed, so that no subsequent history is available. The specimen was sent to Dr. Richard M. Taylor, who reported as follows:

Pathologist's Report.—The specimen consists of two pieces. First: A lobulated, light red, roughly rounded mass, measuring 4 cm. in diameter and weighing 30 gm. The surface is fairly smooth and it appears to be completely encapsulated. The consistency is moderately firm. On section, it is uniformly light pink throughout, except for a few small dark red areas scattered here and there. The cut surface is smooth and regular, but on close inspection it is observed to be divided into numerous irregular lobules by fine trabeculae. The capsule is very delicate, but intact. Second: A small dark red almond-shaped mass, measuring 3.5 by 1.5 cm. by 1.5 cm., and having the usual appearance of a lymph node.

Microscopic: The growth is surrounded by a thin but complete fibrous capsule, from which delicate interlacing trabeculae extend inward. These fibrous trabeculae serve the double purpose of carrying the blood vessels and acting as a support to the tumor cells. The primary blood vessels are quite large, and the walls are well formed by both connective and smooth muscle tissue. The large vessels soon branch and finally break up into a fine capillary network. The principal cell of the growth is a rather large cuboidal

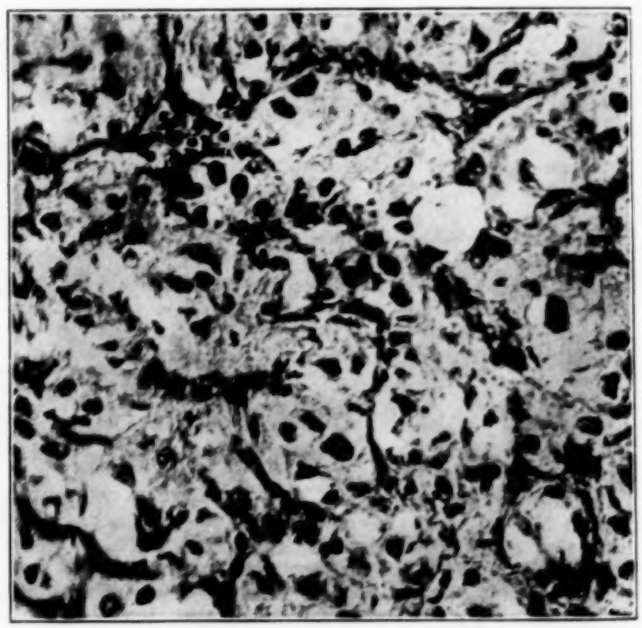

Fig. 2.—A higher power magnification of a selected field showing more intimately the character of the cells; × 300 diameters.

or polyhedral cell with a relatively small and deeply staining, centrally located nucleus, in which a nucleolus can usually be recognized. The cytoplasm is relatively abundant, stains rather indifferently with eosin, and has a homogeneous or finely granular structure, but frequently contains small vacuoles. In some instances, one sytoplastic mass seems to contain several nuclei. This may be only an apparent fusion,

1. Shipley, A. M., and Lynn, F. S.: Carotid Tumor and Aneurysm of the Internal Carotid, THE JOURNAL A. M. A., May 20, 1916, p. 1602.
2. Callison, J. C., and MacKenty, J. E.: Ann. Surg., 1911, **58**, 721.

but it is quite suggestive of a giant-cell formation. The cells are regularly disposed on a fine interlacing honeycomb-like stroma, which also contains the capillaries. The cells, therefore, come into intimate contact with the blood stream, and are well and systematically supplied with nourishment. This very intimate relation and frequently poor differentiation between the cells of the blood vessel walls and the tumor cells is suggestive of an endothelial origin, but the general appearance of the growth is certainly quite different from the usual forms of endotheliomas. While there is a marked departure from normal, there is a distinct resemblance of the growth to the normal structure of a carotid body, and its origin from this organ seems to us quite certain. The growth probably bears a closer resemblance to some of the thyroid carcinomas than to any other form of tumor, but in some respects there is also an analogy to the suprarenal tumors, both in the character of the cells and in the arrangement. The suprarenal tumors, however, have a greater tendency to form solid tubules or cords of cells, while in this tumor the cells are arranged more in small lobules or at least very irregular columns. No mitotic dividing forms were recognized, and, judging from the general arrangement of the cells and their relation to the stroma and the intact capsule, it would be inferred that the proliferation is slow and that the tumor is relatively benign and not prone to give rise to metastasis. The examination of the neighboring and somewhat enlarged lymph node reveals only a mild chronic inflammatory process.

Diagnosis: Tumor of carotid body.

ADENOCARCINOMA OF THE BREAST OCCURRING IN A BOY OF THIRTEEN

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Carcinoma of the breast in the male child is extremely rare. Some assert that it never occurs,[1] while others merely mention it as "possibly occurring, but very rarely." In light of the report of the case of carcinoma in the breast of a boy by Blodgett,[2] it would seem unwarranted to affirm its non-occurrence. Blodgett's patient was a boy, aged 12, and is the only case which I have been able to find in the literature in which a carcinoma occurred in the male breast at an earlier age than in the case which I am reporting.

REPORT OF CASE

History.—John S., aged 13, American, height 5 feet 5 inches, weight 127 pounds, well built, healthy and strong, had never had any serious illness, and was considered very hearty. His father and mother were both living and in good health. The grandfather on the father's side died of tuberculosis at the age of 40; the grandmother on the father's side was living and in good health. Both the grandparents on the mother's side were living and in good health. There had been no history of malignant disease in any of the grandparents. One sister of the father of the patient died at the age of 35 with an adenocarcinoma of the uterus. All other relatives were well and strong, and give no history of malignant disease.

About one year ago the patient was struck in the right breast with a baseball bat. The blow was light, and caused no immediate soreness. Soon after this violence the patient noticed after exertion a burning and stinging sensation in that breast. Five months before the patient was seen by the surgeon, swelling became noticeable and there was some tenderness. When seen by the surgeon, Jan. 25, 1917, the tumor was quite noticeable. At this time a tentative diagnosis of chronic mastitis was made, and the patient prepared for operation the following day.

Operation and Result.—Dr. J. F. Mackey, Odessa, Mo., performed a radical operation, removing the entire gland with the surrounding fatty tissue. The diseased tissue was approximately 8 cm. across and about 1.5 cm. thick in the center; toward the margins the tumor was thin. The axillary glands showed no enlargement.

The healing process was rapid. Three weeks after the operation, the union was perfect and the scar firm. At this time no abnormality could be detected by inspection or by palpation. There was no enlargement of the axillary glands on the side on which the operation had been performed. The left breast was examined, Feb. 25, 1917, one month after the operation. It showed some enlargement both to inspection and to palpation. The axillary glands on that side were not enlarged. The examining surgeon believed a tumor present in this breast, but since the parents of the patient did not consent to an operation, no diagnosis as to the nature of the tumor could be made with certainty.

Pathologic Report.—Microscopically there was a marked proliferation of the gland elements throughout the sections. The newly formed glands were very irregular in shape, and the epithelium was arranged in many layers. Some showed definite lumina, while in others the proliferation was so great that the lumen was entirely filled up with cancer cells. Many of the glandular structures showed an ingrowth of

Fig. 1.—A portion of the tumor showing the atypical gland formation. There is a new formation of cancer acini within the preexisting gland acini. Low power magnification.

stroma dividing it up into many smaller divisions. There was a tendency toward the formation of grapelike clusters of these atypical glands. The ducts showed some reduplication in the layers of epithelium. The stroma was abundant but not highly cellular. The adipose tissue appeared normal except for some areas in which the cancer had grown into it. There was a tendency to degeneration of the cells which lay centrally in the atypical acini, but this had not progressed to a marked degree.

The pathologic diagnosis was: adenocarcinoma of the breast, of the medullary type.

COMMENT

As stated, this case is largely of interest because of the infrequency of cancer in the breast of boys. Cancer of the male breast comprises only from .1 to 2 per cent. of all mammary neoplasms. Rodman[3] and Bryan[4] each put the figure at 1 per cent., Deaver and McFarland[5] at 1.5 per cent., and Schuchardt[4] places it at 2 per cent. While these figures indicate the relative infrequency of carcinoma in the male

1. "The first four quinquennia of life are completely exempt from malignant epithelial tumors of the mamma; at least I know of no well-authenticated case that can be cited as having occurred within this period." (Williams, W. R.: The Natural History of Cancer, New York, William Wood & Co., 1908, p. 329).
2. Blodgett, A. N.: Cancer of the Breast in a Child, Boston Med. and Surg. Jour., 1897, **136**, 611.
3. Rodman, W. L.: Diseases of the Breast, Philadelphia, P. Blakiston's Son & Co., 1908.
4. Cited by Deaver and McFarland (Footnote 5).
5. Deaver and McFarland: The Breast: Its Anomalies, Diseases and Treatment, Philadelphia, P. Blakiston's Son & Co., 1917.

breast, they do not show the frequency of cancer in the *young* male. No statistics have been found which give the relative frequency of mammary carcinoma in the male breast under 15 years of age, but this figure certainly must be very low. A search of the literature has revealed but two authentic cases, that of Blodgett,[2] who reported a carcinoma in the breast of a boy, aged 12, and that of Bryan,[1] who reported a case in a boy, aged 14 years and 8 months. In fact, cancer in the breasts of children under 15, regardless of sex, is very infrequent. The cases of mammary carcinoma reported by Lyford, Carmichael, Cooper and Howe,[6] who reported cases at the ages of 8, 12, 13 and 15, respectively, must be considered of doubtful diagnosis, since in none of these cases was the diagnosis confirmed by microscopic examination of the tumor. Thompson's[7] report is the only other one of a patient under 15 years of age which will bear critical examination. He removed the tumor from the breast of a girl, aged 11 years, and submitted it to the pathologists of Bradford, England, for diagnosis. It was reported as an adenocarcinoma. Philip[8] collected reports of 300 cases of malignant tumors in childhood, but in this number there was none found in the breast of children under 15 years of age. The present case, then, is unusual from the standpoints both of age and of sex.

Fig. 2.—Another portion of the tumor. The overgrowth of glandular elements is demonstrated. The cancer acini show multiple lumen formation. The ducts show an irregular overgrowth of epithelium. Low power magnification.

It is also of interest, in this case, to note that the trauma seems to stand in direct causative relation to the formation of the tumor. Phelps[4] states that only 9 per cent. of all writers since the middle of last century believe that transient injury might be a predisposing condition of malignant disease. In this case, however, the tumor development did occur "within a reasonable length of time after the injury," and so in this case an etiologic relation might well be ascribed to the injury. Furthermore, the fact that the tumor was actually noticeable by the patient himself seven months after the injury, together with the fact that even before the actual appearance of the tumor he complained of this stinging and burning sensation in the breast after exertion, would seem to substantiate such a view. These incidents, however, while seemingly unquestionable in sequence, may have been a coincidence and bear no relation to the tumor formation. One case is certainly not enough to prove such an assumption.

Writers seem to agree that malignant tumors occurring in the young are apt to be of a rapidly growing type. The examination of this tumor supports this view and emphasizes the importance of the early recognition of these cases of unusual carcinoma and their early and complete removal. The possibility of a neoplasm being carcinomatous should not be excluded because they are found in the breast of children, either male or female, until the true nature of the tumor is determined by microscopic examination.

6. Lyford, Carmichael, Cooper and Howe, cited by Rodman (Footnote 3).
7. Thompson: Brit. Med. Jour., 1908, **2**, 502.
8. Philip: Ztschr. f. Krebsforsch., 1907, **5**, 326.

REPORT OF A CASE OF CHLOROMA *

G. B. KRAMER, M.D., AND T. L. BIRNBERG, M.D., ST. PAUL
Pathologist and Visiting Physician, respectively, City and County Hospital

History.—A girl, aged 4, was brought from an orphanage to the City and County Hospital, Sept. 7, 1916, for the purpose of having her tonsils and adenoids removed. One of the sisters in the orphanage had noticed that the child's eyes were getting larger and more prominent. An oculist who examined the child's eyes made little of the condition, and advised removal of the child's tonsils and adenoids, which was done.

Several days after the operation, the child contracted chickenpox, from which she recovered several days later. The physician in charge noticed that her eyes gradually became more prominent. For a time, it looked as though the exophthalmic condition was stationary, but later exophthalmos became more marked, the head became larger, and the nose became saddle-shapped. Examination of the eyes revealed choked disk. Exophthalmos of the eyes and enlargement of the head gradually increased, the glands of the neck and submaxillary glands became larger and hard, and the rami of the mandible of the jaw began to show more prominence. All sutures of the head began to separate and, between the sutures, a boggy mass about 3 cm. across was felt, the surface of which was smooth. This mass was present between and all along the sutures of the cranial bone. At that time one of us (T. L. B.) saw the patient and diagnosed the condition as chloroma. The temperature varied from 100 to 102 F. The symptoms continued to become marked until death, which occurred, Nov. 27, 1916. The child was greatly emaciated and anemic.

Laboratory Findings.—Examination of the urine revealed no albumin; the specific gravity was 1.028, the reaction was acid, and there were no casts. The Wassermann test was negative. A nasal smear revealed Friedländer bacilli and staphylococci. Blood examination revealed: erythrocytes, 1,200,000; white cells, 12,900; differential count: polymorphonuclears, 68 per cent.; lymphocytes, 16 per cent.; large mononuclears, 6 per cent.; transitionals, 30 per cent.; eosinophils, 2 per cent. Two weeks later: polymorphonuclears, 40 per cent.; lymphocytes, 39 per cent.; large mononuclears, 12 per cent.; transitionals, 7 per cent.; eosinophils, 2 per cent.; basophils, 1 per cent. Six days later: polymorphonuclears, 25 per cent.; lymphocytes, 26 per cent.; large mononuclears, 30 per cent.; transitionals, 7 per cent.; eosinophils, 2 per cent.; myelocytes, 5 per cent.

Postmortem Findings.—Necropsy was performed six hours after death. The head was large and asymmetrical. Both rami of the inferior maxilla were prominent, but the left was more prominent than the right. On each side of the hard palate there was an olive-shaped body about 1 cm. across. The submaxillary glands were enlarged and hard. The glands of the neck were enlarged and hard. The eyes showed extreme exophthalmos. The conjunctivae were edematous, the corneas slightly opaque. The pupils were equal in size. The veins of the neck were distended and prominent. The sutures of the cranial bones were separated, and all along between the sutures there was a boggy mass, 2 cm. across. On the inner surface of the sternum there was yellowish-green tissue 5 mm. in thickness. All along the thoracic vertebrae there was a thick layer of greenish-yellow tissue. There were several yellowish-green plaques on the pericardial wall. On the heart, in the middle of the left ventricle, there was yellowish-green tissue which was 8 mm. across and extended 3 mm. into the ventricular wall. On the lungs there

* From the Pathological Laboratory, City and County Hospital.

were deposits of yellowish-green tissue, the distribution of which was irregular, the deposits varying in size from 3 to 5 mm. across. On the surface of the liver and also on the cut surface there were greenish-yellow areas. On the cut surface these were generally found near and around the blood vessels. The pancreas all the way through was greenish-yellow and harder than normal; on section the greenish-yellow also prevailed. The lobules were indistinct. The mesenteric

Patient with chloroma.

glands were slightly enlarged. The surfaces of the kidneys were greenish-yellow, the color being irregularly distributed. On section the same color prevailed. The markings were indistinct. The cortex was slightly thickened. The ovaries and tubes were harder than normal, and on section were greenish-yellow.

When the scalp was removed, the cranial bones were found to be separated and held firmly together by hard greenish tissue, 3.5 cm. in diameter and 1 cm. thick. The tumor mass extended more extracranially than intracranially; the bones were of normal thickness. On the dura there was a deposit of green tissue which followed the sinuses. Here too the tissue was 2.5 cm. across and 8 mm. thick. The dura between the tumor masses appeared normal. The base of the skull presented the same appearance as the cranial bones described above. The sutures were separated, and between the sutures there was a greenish tumor. The orbits were filled with green tumor masses which caused the eyes to protrude. The ribs and costal cartilages were enveloped in a greenish-yellow tissue 3 mm. in thickness.

Microscopic examination of the tumor, bone, meninges, brain, muscle, heart, lungs, liver, kidney, spleen, pancreas and lymph glands showed the tumor to be made up of lymphoid cells. Some of the nuclei of the cells were round and others oval. The cytoplasm varied in amount in different cells. In the areas in which the organs were involved the cells formed dense masses and were held together by a delicate fibrous tissue network. The infiltrations of these cells were chiefly interstitial.

The clavicular and costal periosteum was densely infiltrated with the type of lymphoid cells maintained above.

The muscles showed extensive involvement. The tumor cells were most prominent between the bundles of muscle fiber. The muscle fibers in certain areas were entirely gone, and in their place there were dense masses of lymphoid cells. The serous coverings of the lungs in places were infiltrated with the tumor cells. The same kind of cells were also seen in the alveoli and around the bronchioles and blood vessels.

The splenic pulp was made up of mononuclear cells. The malpighian corpuscles did not show hyperplasia. Many eosinophils were present in the splenic tissue.

In the liver the infiltration was interlobular and intralobular, and it was also seen in the columns between the hepatic cells.

In the pancreas the tumor cells took the same interlobular course and were also present around the pancreatic ducts and acini.

The uriniferous tubules of the kidneys in areas were swollen, and their lumens contained albumin. Between the tubules there was extensive lymphoid cell infiltration. In some parts the infiltration was so dense that it was not possible to make out the kidney structure.

Microscopic examination of the brain did not reveal any pathologic change.

The anatomic diagnosis was general chloroleukosarcomatosis.

A HOME MADE VERTICAL FLUOROSCOPE

HENRY L. SHIVELY, M.D., AND CHARLES R. TYLER, PH.G., NEW YORK
Visiting Physician and Radiographer, respectively,
St. Joseph's Hospital for Consumptives

A year ago, when the Roentgen laboratory installation was purchased for St. Joseph's Hospital, the limited funds available for the purpose made it necessary to study economy in order to secure all the apparatus desired. By dint of a careful study of our needs, the elimination of everything not strictly necessary, and by collective buying with three other institutions, we were enabled to obtain a complete and satisfactory equipment consisting of a 6 to 10 kilowatt interrupterless transformer, a current generating unit for heating the Coolidge tube, a stereoscopic tube stand, an automatic plate changing table, a Wheatstone stereoscope, and vertical fluoroscope at a very moderate cost—not exceeding $1,200.

The listed prices, from $300 to $700, of the manufacturers of fluoroscopes under such fancy names as "orthoscope," "trochoscope" and "diagraphoscope" seemed out of all pro-

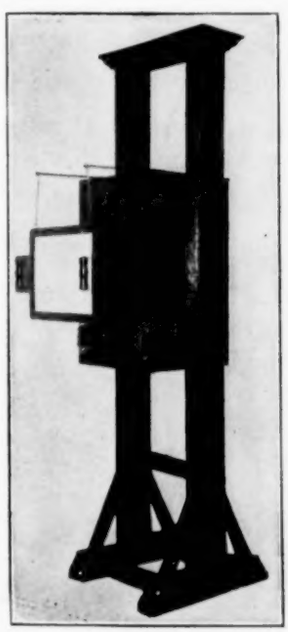


Fig. 1.—Front of fluoroscope with screen suspended.

Fig. 2.—Back of fluoroscope; tube box containing Coolidge tube open.

portion to the cost of construction, and we determined to make our own. When it is remembered that the fluoroscope is simply a contrivance for suspending the fluorescent screen, carrying the tube box, and securing a synchronous adjustment of the two, with adequate protection for the operator, the mechanical problems did not appear beyond the constructive ability of an intelligent carpenter. All the combi-

nation vertical and horizontal machines we have seen built in the folding bed manner are clumsy, stiff, difficult to operate, and unsatisfactory, besides being unduly expensive. A permanent, upright model was chosen as most useful for our needs, and our experience with this home-made fluoroscope at a cost of $60 and a saving of at least $250 has been so satisfactory that we have thought a description of it might be useful to institutions interested in the installation of Roentgen equipment at moderate cost.

The apparatus consists of a tube box 13 by 13 by 29 inches, covered with sheet lead one-eighth inch thick and hung with counterweights in a solidly constructed vertical frame of oak. Inside the box at each end, grooves are provided which allow the insertion of a Kelley-Koett tube board. The high tension leads are carried through the hinged door at the back, encased in insulators of heavy glass tubing. In the center of the front of the box is a 6 inch square opening for the passage of the Roentgen rays. Four inches from the front and parallel to it is a three-fourths inch board, 18 by 30 inches, having a 14 inch square aperture concentric with that in the front of the tube box. The interior of the box is lined with mica sheets to prevent "jumping" of the high tension current.

The fluoroscopic screen, 12 by 16 inches, of lead glass with protected handles is suspended from sliding brass rods attached to the top of the tube box, permitting the screen to be freely moved from side to side, toward or away from the box, and adjusted to the intervening surface of the body of the patient under examination. The uprights of the supporting frame are hollow and enclose the counterweights, which are of lead, weigh about 350 pounds, and were cast to order.

The leaded box is held in a perpendicular position by means of guides running in slots on the inner faces of the uprights. The counterweights are attached to the top of the tube box by wire cables running over pulleys similar to those used in suspending window sashes, inserted in the inner faces of the uprights.

The apparatus was constructed in the hospital workshops at a cost of $60 by our own mechanics, an estimate of the various items being: lumber, varnish, etc., $25; lead sheets and counterweights, $27; Kelley-Koett tube board, $8.

A liberal estimate for the cost of necessary labor would be $25. The machine is flexible and easy working, has been in use for ten months, and has proved satisfactory in every way.

303 Amsterdam Avenue—168 West Eighty-First Street.

Syphilis in Massachusetts.—In a report of progress on a regulation of the state authorizing the state department of health to provide for the prevention and suppression of syphilis, Commissioner Allan J. McLaughlin (*Public Health Bulletin*, February, 1917) says that approximately 10 per cent., probably many more, of the inmates of the state insane hospitals are insane because of syphilis. On this basis there are about 1,700 syphilitics continuously under the care of these hospitals. Such studies as are available, McLaughlin says, indicate that about 5 per cent. of syphilitics develop general paralysis of the insane. In 1914, 258 such patients were admitted to the state insane hospitals, which number would represent about 5,160 syphilitics. The commissioner says that there is reason to believe that syphilis is responsible for possibly one quarter of all stillbirths. In 1914 there were 3,478 stillbirths in Massachusetts, which means that 869 infants were born dead from the effects of this infection, which was present in their mothers and probably in most of their fathers. Since the establishment of the Wassermann laboratory by the state department of health in June, 1915, some 37,000 tests have been made, 5 per cent. of which were positive, representing, it is said, at least 850 syphilitics. This is believed to be a fair representation of the condition of the general population with reference to syphilis, and by some observers is considered too low. As a cause of suffering, sickness and death, the commissioner says syphilis undoubtedly ranks next to lobar pneumonia and tuberculosis, the two latter being responsible, respectively, for about 6,000 and 4,000 deaths annually.

APPARATUS IN BIRTH-FRACTURE OF FEMUR

THOMAS H. RUSSELL, M.D., AND HARRY S. REYNOLDS, M.D.
NEW HAVEN, CONN.

The case reported below presented problems which were so easily and satisfactorily overcome by a new application of a known principle that it seems worthy of mention.

Feb. 3, 1917, one of us (H. S. R.) was called to see A. D., a girl, aged 9 days, because of swelling of the left thigh. The delivery had been effected by a colleague after a difficult dry

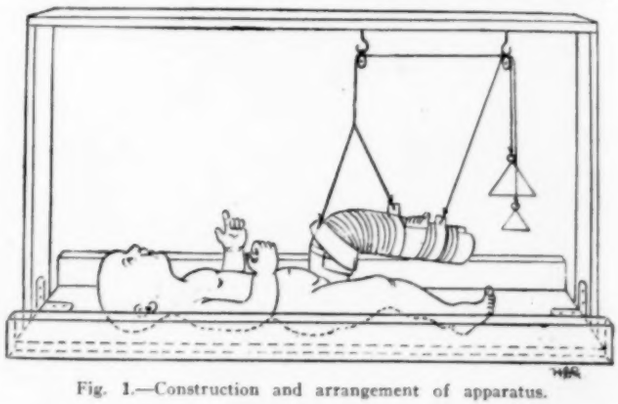


Fig. 1.—Construction and arrangement of apparatus.

version. Two physicians, who had previously been called, had advised the family that the child could be delivered only by morcellation. At the time of delivery no lesion had been noticed, although the obstetrician has stated that he noticed a snapping sensation.

The baby had nursed well and had seemed all right, except for this swelling and a disposition to cry most of the time.

On physical examination, the left thigh was found to be shortened, and considerably increased in its diameter, the thigh muscles being hard, firmly contracted and bulging. A point of false motion was detected in the femur at about the junction of its upper and middle thirds; the lower fragment had overridden the upper laterally and there was marked angulation. A roentgenogram, made by Dr. A. P. Bergman, later confirmed the diagnosis of birth-fracture of the femur, and revealed a beginning new-bone formation between the fragments.

Fig. 2.—Condition of fracture at time of beginning treatment; new-bone formation already begun between fragments.

As the nature of the case brought it outside of the domain of pediatrics, the cooperation of a surgeon (T. H. R.) was enlisted.

The problem called for a scheme of treating a patient, from whom no cooperation could be expected, by providing efficient extension with a minimum of irritation of the delicate skin, which would not well tolerate adhesive straps for extension; repose in as natural a position as possible in a comfortable bed; portability; convenient means of nursing, and suitable and hygienic administration of the baby's toilet, the care falling on a mother burdened by a large family of small children and many household duties. These demands were successfully complied with by the following simple expedient:

A plaster saddle was molded to fit the under surface of the knee, which was flexed to form an angle of about 120 degrees

with the thigh, and was carried below the foot about 3½ inches to act as a counterweight; this saddle, suitably padded, was bandaged on beneath the knee and suspended from the crossbar of an apparatus constructed of a board 13 by 32 inches, with side strips 3 inches wide, and with a 21 inch upright at each end to which was attached a horizontal crosspiece, the suspension being carried out by means of adhesive straps around the saddle, a cord and pulleys, and a 3 pound weight. The extension of plaster below the foot acted as a counterweight to hold the foot down and prevent the saddle from sliding out of position. As there was a slight tendency for the limb to swing from its proper axis after the patient's toilet, etc., had been attended to, a string was attached to the end of the saddle and the latter held in proper position with slight traction by means of a light weight attached to one of the pulleys. When the limb was suspended, the patient promptly fell asleep, evidencing the comfort of the apparatus.

Fig. 3.—Condition fifty-three days after fracture.

It was hoped that the traction would pull the fragments into position, but this had to be accomplished the following day by manipulation, as malunion had already begun.

February 20, the union appeared to be so well under way that the leg was taken down. Union has taken place without shortening or other deformity.

The Buck and Hodgen splints are not well adapted for children, and Bryant's extension places the patient in a most unnatural position. DaCosta states that "in children under 3 years of age the extension apparatus will not satisfactorily immobilize the fragments." Stimpson has recommended vertical extension of both legs in children. Eisendrath (Keen's "Surgery") says, "In children a fracture of the shaft is most easily treated by the use of Schede's vertical suspension."

The methods advocated by these authors all necessitate the use of adhesive strips applied to the skin, which our saddle principle obviates. Our method as a whole, we believe, fulfils all of the requirements enumerated in the early part of this report.

Discovery of Ether.—Ether was prepared for the first time in the sixteenth century by Valerius Cordus from spirit of wine. It was formerly thought to contain sulphur, and was therefore given the name sulphuric ether, still in use. Its true composition was established by Saussaure and by Gay-Lussac (1807 and 1815) and the constitution was enunciated by Laurent and Gerhardt and confirmed experimentally by Williamson. It was thought for a long time that the sulphuric acid employed in the manufacture of ether possessed the sole function of fixing and subtracting water from the alcohol. Since, however, it was found that water formed in the reaction always distilled with the ether, this hypothesis became invalid, and Berzelius and Mitscherlich attributed the reaction of etherification to the catalytic action of the sulphuric acid.—General and Industrial Organic Chemistry, Dr. Ettore Molinari, Translated by Thomas H. Pope, Second Edition, 1913, p. 192.

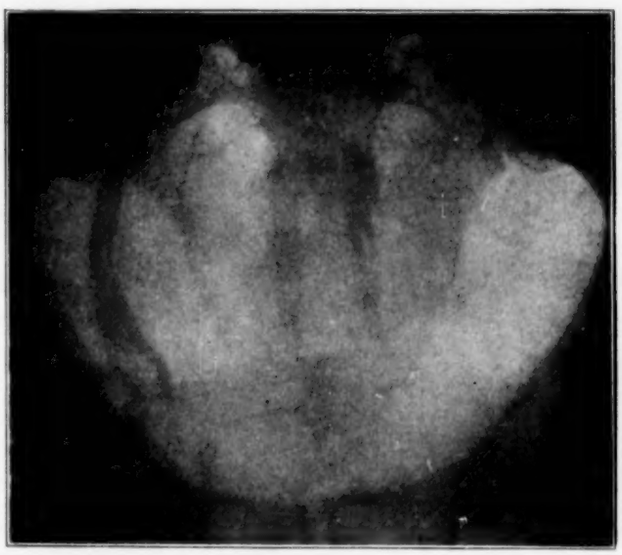
UNIQUE ROENTGENOGRAPHIC DEMONSTRATION OF A URIC ACID CALCULUS

A. RAYMOND STEVENS, M.D., NEW YORK
Assistant Attending Surgeon, Urologic Service, Bellevue Hospital

This brief report of a case of uric acid ureteral calculus illustrates a novel means of diagnosis, as demonstrated by the accompanying roentgenographic print.

A diagnosis of uric acid stone usually depends on the wax-tipped catheter, or a visual demonstration of dilatation of the ureter and pelvis above the obstructing stone by means of a pyelogram and ureterogram. In a few instances, after the injection of collargol into the pelvis of the kidney and subsequent draining off of the collargol, an otherwise obscure calculus has become evident on Roentgen examination because of the adherence of some of the collargol to the rough surface of the calculus. In this following case, the urate stone appears on the roentgenogram as a vacuole in the dense shadow thrown by thorium injected into the ureter.

The patient, a man, aged 51, was admitted to the medical side of Bellevue Hospital, Sept. 30, 1916, and subsequently transferred to Dr. Keyes' urologic service. He gave a history of intermittent passage of dark colored urine for about a year, and of dull aching pain in the abdomen to the left of the umbilicus, off and on for four months. The urine showed blood microscopically. Repeated Roentgen examinations revealed at time suspicious shadows in the left kidney region, but never any suggestion of calculus in either ureter. The genital organs and bladder seemed normal. Catheters passed up the right ureter easily, but on two occasions were obstructed at a point from 4 to 5 cm. up the left ureter. A little pus was obtained from both kidneys. The output of urea and phenolsulphonephthalein indicated practically equal function. The only prepared wax-tipped catheters at hand would not enter the small left ureteral orifice. By manipulation, a 5 F. catheter was made to pass the obstruction, thorium was injected, and a roentgenogram taken. The diagnosis of a uric acid or urate ureteral calculus was based on the dilitation of the ureter, and on the presence of something permeable to the Roentgen ray situated at the lower portion of the dilatation in the field of thorium.



Appearance of urate stone as a vacuole in the shadow thrown by thorium injected into the ureter.

I performed an extraperitoneal operation, and a dilated ureter with an impacted rough stone near the bladder was found. The calculus could not be milked up the ureter, and was removed by an incision in the ureter over the stone. Chemical analysis showed the latter to be calcium urate.

40 East Forty-First Street.

A RADIUM APPLICATOR FOR THE THROAT

C. W. HANFORD, M.D., CHICAGO

In treating the tonsil and soft palate with radium, it is necessary that the tube containing the radium should come in close contact with the neoplasm for a number of hours. It is impossible for the patient to hold it in position. When I am

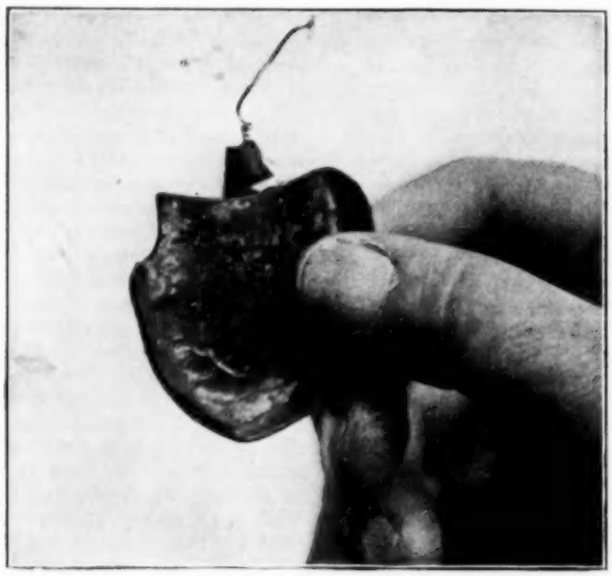


Fig. 1.—Plate and wire.

called to treat cancer at these sites, I have a dentist make a rubber plate to fit the upper jaw. At the back of this plate and on its undersurface I have a pure silver wire embedded. The wire is about 2 inches long and 1 mm. in diameter (Fig. 1). The tube containing the radium is properly screened (Fig. 2), and the wire is then wound

Fig. 2.—Applicator ready for insertion.

about it and the whole then covered with a finger cot. The wire can be bent to any angle, and when the plate is in position, the tube, by manipulation of the wire, will come in direct contact with the part to be irradiated and will remain so. In order that the plate will stick to the roof of the mouth, I sprinkle a little powdered gum on the top of the plate, which insures its holding in place.

31 North State Street.

A TREATMENT FOR THE SOLITARY FURUNCLE

WILLARD BARTLETT, A.M., M.D., ST. LOUIS

Trauma plays a definite rôle in the development of a solitary furuncle, after the primary infection has taken place. This lesion, which is so frequently encountered on the back of the neck of a man, is most common in my experience just at the height of the top of the collar, and located immediately over the spinous processes in the midline, or over the prominence of the right or left muscle masses—areas in which collar and clothing exert the most pressure. The truth of the foregoing statements would seem to be borne out by the rarity of this malady in women, who treat the back of the neck, as far as dress is concerned, with much more consideration than do men. The proposal of an early abortive treatment is based on this anatomic observation.

On the appearance of the first symptoms, the lesion should be protected with a bunion plaster or a vaccination shield. It must not be pricked, touched with the fingers, squeezed out, or rubbed by the collar and clothing. It should be exposed to the direct rays of the sun, or to those of an ordinary incandescent light bulb, as much as possible. The action of sunlight in the treatment of inflammatory lesions is too well known to justify extended consideration, and Crile has recently called our attention to the fact that the light rays of the ordinary incandescent bulb are practically analogous to those of the sun. Acetylsalicylic acid in doses of from 5 to 10 grams greatly aids in limiting spontaneous pain during this period. If the furuncle is not aborted by this treatment, one should wait until a frank pustule has developed, then infiltrate in healthy tissue around the lesion a definite ring of 0.5 per cent, novocain, to the ounce of which 4 drops of 1:1,000 epinephrin solution have been added. After the lesion has become insensitive to pain, it should be opened widely by a crucial incision, made with a thin platinum electrocautery blade. Rather long incisions can be made without danger of opening up healthy tissue to infection. If sufficient time has elapsed before the incision is made, the necrotic center of the lesion can be lifted out at once; but if it is not loose, gentle suction should be employed every hour or so, the wound being merely covered by a vaccination shield and exposed to the rays of an incandescent bulb, placed so close to it as to produce an agreeable warmth.

A 15 watt lamp gives a delightful sense of warmth, as my own recent experience has demonstrated; while the ordinary green metal household shade protects surrounding parts from heat and light. In a short time the necrotic center can be sucked out in toto, after which the defect rapidly granulates and no further treatment is needed beyond protection of the wound with a vaccination shield, and an occasional cleansing with alcohol, to prevent reinfection of the surrounding skin openings. In case the lesion is on the back of the neck and any form of circular bandage is worn, painful pressure and distressing massage of the lesion are unavoidable every time the head is turned. To avoid this form of torture, the patient endeavors, by using all of the neck muscles, to hold the field at rest, and soon excessive local fatigue makes his lot still more unhappy. It may further be said that any form of dressing makes a pus poultice, and accounts in a great measure for reinfections and neighboring secondary furuncles, while the growth of bacteria is hindered by the drying up of excretions from a wound exposed to the air.

This treatment may be carried out by any intelligent member of a family or office force, which brings it well within the range of possibility for many men, without upsetting the ordinary routine of life. If carried out faithfully, with regard for every detail, it robs this distressing malady of its most serious features. The sort of stock affected by horsemen and golfers can readily be worn over the vaccination shield, and the patient, though somewhat uncomfortable, will be much more presentable than is the case when an otherwise well-groomed man with a stiff neck goes about, minus collar and tie, with a surgical bandage where they should be.

Bier's suction rapidly reduces the edema in adjacent muscles, with the consequent early disappearance of the stiff neck so characteristic of the condition.

410 Metropolitan Building.

A SIMPLIFIED METHOD FOR DETERMINING THE ISO-AGGLUTININ GROUP IN THE SELECTION OF DONORS FOR BLOOD TRANSFUSION

W. L. MOSS, M.D., BALTIMORE

The introduction within the past few years of satisfactory methods for the indirect transfusion of blood has done much to popularize this procedure. Fortunately the popularity of the procedure rests not solely on a simple and satisfactory technic but also on its therapeutic value in a number of conditions.

It is now generally recognized that isohemolysis and iso-agglutination constitute a possible source of danger in transfusion unless a donor is selected who belongs to the same iso-agglutinin group as that of the patient.

Although many transfusions have been performed between members of different groups without untoward results, there are a sufficient number of "accidents" on record to remind one that there is an element of danger. That the transfusionist appreciates this is evidenced by the fact that more and more frequently he or his colleague of laboratory habits is taking the trouble to select donors belonging to the same group as the patient, although this involves the use of a technic which, while not difficult, requires a little practice, and is somewhat time-consuming.

Depending on the ability of the serum to agglutinate the corpuscles of other individuals and of the corpuscles to be agglutinated by the serum of other individuals, every person falls in one or other of four groups:

Group I. Serum agglutinates no corpuscles. Corpuscles are agglutinated by the serum of Groups II, III and IV.

Group II. Serum agglutinates the corpuscles of Groups I and III. Corpuscles are agglutinated by the serums of Groups III and IV.

Group III. Serum agglutinates the corpuscles of Groups I and II. Corpuscles are agglutinated by the serum of Groups II and IV.

Group IV. Serum agglutinates the corpuscles of Groups I, II and III. Corpuscles are agglutinated by no serum.

The serum of a given individual may or may not contain an isohemolysin; but if an isohemolysin is present, it acts in accordance with the laws governing the action of the iso-agglutinins. Thus the serum of Group I, which contains no iso-agglutinin, never contains an isohemolysin. The serum of Group II may or may not contain an isohemolysin, but if present it can act only on the corpuscles of Groups I and III. If the serum of Group III contains an isohemolysin, it can act only on the corpuscles of Groups I and II, while isohemolysin occurring in the serum of Group IV may act on the corpuscles of Groups I, II and III.

Consideration of this classification shows that if transfusion is performed between members of the same group, the danger of iso-agglutination and isohemolysis is obviated; but if the patient and donor belong to different groups, the possibility of danger is present.

TABLE 1.—SERUM TEST AGAINST KNOWN CORPUSCLES*

Serum	Corpuscles		Group to Which x Belongs
	Group II	Group III	
x	0	0	I
x	0	+	II
x	+	0	III
x	+	+	IV

* In the tables, + represents agglutination, and 0, no agglutination.

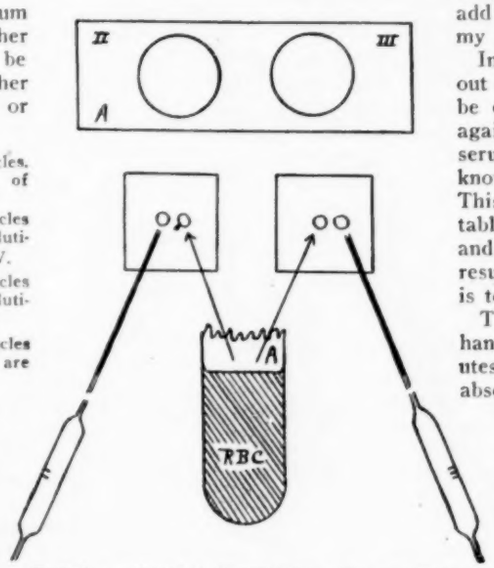
The method usually employed for determining the compatibility of patient and donor with reference to iso-agglutinin and isohemolysin consists in testing the serum of the patient against the corpuscles of each of the prospective donors, and the serum of each of the prospective donors against the corpuscles of the patient. Any person whose serum does not agglutinate the patient's corpuscles and whose corpuscles are not agglutinated by the patient's serum belongs to the same group as the patient, and is suitable as a donor as far as iso-agglutinin and isohemolysin are concerned.

TABLE 2.—CORPUSCLE TEST AGAINST KNOWN SERUM

Corpuscles	Serum		Group to Which x Belongs
	Group II	Group III	
x	+	+	I
x	0	+	II
x	+	0	III
x	0	0	IV

This test determines which, if any, of the prospective donors are in the patient's group, but does not indicate what that group is.

Rous, Minot, Brem and others have devised simplified methods for the selection of a donor of the same group as that of the patient. To these I wish to add one which has proved satisfactory in my experience.



Technic employed in determining group to which an individual belongs by testing his corpuscles against known Group II and Group III serums. If a number of individuals are to be tested, the tubes containing the corpuscle suspensions may be designated by letter and the corresponding letter placed on the slide.

In a previous publication[1] I have pointed out that the group of any individual may be determined by testing his corpuscles against known Group II and Group III serum or by testing his serum against known Group II and Group III corpuscles. This is illustrated by the accompanying tables, which show all the possible results and the group to which *x* belongs for each result, *x* being the individual whose group is to be determined.

The test is easily performed in the hanging drop, it requires but a few minutes to set up, and the presence or absence of agglutination is observed under the microscope.

Group II and Group III serum may be kept on hand in the laboratory ready for use; it is then necessary only to get a single drop of blood in salt solution for corpuscles in order to determine the group of any individual.

The technic which I employ and have found satisfactory requires: Group II serum; Group III serum; capillary pipets; hollow-ground slides; cover slips; test tubes; physiologic sodium chlorid solution (0.85 per cent.); microscope.

The collection and preservation of Group II and Group III serum is accomplished thus: Five c.c. of blood are withdrawn from an arm vein of a Group II individual and the same amount from a Group III individual, placed in sterile centrifuge tubes, allowed to clot, centrifugalized, and the serum transferred to other sterile tubes. From the latter, capillary pipets are to be filled.

A number of capillary pipets are prepared from glass tubing 3 or 4 mm. in diameter by drawing each end out into a capillary. The capillary at one end is cut off within 1 inch of the body of the tube. That at the other end is left 6 or 8 inches long. These are sterilized and half are used for the Group II and half for the Group III serum, the long capillary stem being filled half full of serum, the tubes tilted so that the end of the column of serum will be about an inch from the end of the capillary, and then both ends of the tube sealed in the flame. Two file marks on the glass indicate the tubes

1. Moss, W. L.: Paroxysmal Hemoglobinuria, Bull. Johns Hopkins Hosp., 1911, **22**, 238-247.

containing Group II serum and three marks those containing Group III serum. The tubes are stored away in boxes at room temperature but protected from the light. These tubes may be kept in the laboratory and are ready for immediate use whenever required. Serum preserved in this way retains its agglutinating power six months or longer.

With Group II and Group III serum on hand, the determination of the group of any individual is easily and quickly done. A single drop of blood from the finger-tip or ear is allowed to fall into a test tube containing 8 or 10 c.c. of physiologic sodium chlorid solution (0.85 per cent.). The tube is shaken or rotated in order to obtain a uniform suspension. On each of two cover slips a very small drop of the corpuscle suspension is placed by means of a capillary pipet or platinum loop; to one a drop of Group II serum is added and to the other a drop of Group III serum. The serum and corpuscles are mixed on each cover slip, inverted over a hollow ground slide, and examined under the microscope. Agglutination may take place in a few minutes at room temperature, but it is a safe rule to allow half an hour at 37 C. to elapse before concluding that there is no agglutination.

CHONDROMA OF THE SOFT PALATE, LONG OVERLOOKED

Ben C. Gile, M.D., Philadelphia

It sounds like a paradox to say that we need to be reminded of familiar truths, but this is a fact. Every physician knows that a correct diagnosis is invaluable and that we should earnestly strive to discover and remove the cause of the diseases we encounter, and yet quite frequently we learn of cases in which the treatment has been exclusively symptomatic and etiologic investigation has been entirely neglected. Of course, we are often required to treat symptoms: it may be our first duty to check a hemorrhage or relieve a severe pain, irrespective of causation; when we have time for investigation, however, especially in chronic cases, purely symptomatic treatment is justified only by conditions in which: (1) the cause cannot be discovered; (2) the cause is a self-limiting process, as in many of the disorders occurring during pregnancy, or (3) the cause, though known, is beyond remedy and must be reckoned with as a permanent factor. Apart from situations such as these, the restriction of our therapy to the palliation of symptoms is negligence hard to condone.

In the case described herein, a slowly growing tumor, in an accessible locality, had reached a considerable size and had given rise to a number of symptoms. The patient had been successively under the care of four practitioners, two of them laryngologists. Various remedial measures, medical and surgical, had been employed, but all treatment had been addressed to symptoms: no one did anything with the causal tumor and, in truth, only one of the four scrutinized the region in which it was to be found. The varied treatments temporarily palliated the symptoms, but had no permanent effects, and the patient was growing worse until at last the tumor was recognized as the sole cause of the morbid conditions, and was extirpated, bringing about complete recovery.

As some of the statements in this narrative may seem strange, I wish to be particularly clear and definite regarding the authority on which they rest. Nothing which transpired before I took charge of the case came within my own personal knowledge. When the patient consulted me, she had already parted with her former advisers and I had no opportunity to confer with any of them. The patient is a young woman of intelligence, and I believe her to be entirely trustworthy. On account of her prolonged treatment and her large outlay of money, this illness was for her a very trying episode, and she put in writing a history of her experiences, from the time when she first sought medical aid until its final cessation, on her recovery of health. It is on this record that I have depended for the facts preceding the time when I made her acquaintance. I believe that, to the best of her ability, she has told with accuracy what occurred in her case.

REPORT OF CASE

History.—In 1911, Miss E. W., aged about 30, sought the advice of her family physician, because of persistent earache on the right side. There was no discharge, and hearing was not impaired. The throat was not examined, and the treatment consisted of internal medication. The pain gradually passed away.

In 1913 there was another prolonged attack of earache and an intercurrent tonsillitis. Both subsided in a couple of weeks, but left a cough which continued for months. The same physician was in charge, and the patient took many bottles of medicine, the character of which she did not know. There were no surgical procedures.

In 1914 a very painful abscess developed in the right ear and was lanced by Dr. X, a laryngologist. No examination of throat or nose was made. Later in the same year occurred another attack of tonsillitis with troublesome cough. These affections were treated by Dr. Y, who administered a good deal of medicine by the stomach. No surgery was done, and no examination of the nose or of the nasopharynx was made.

Near the end of 1914, the patient, much discouraged by her frequent attacks of illness, applied to a laryngologist, Dr. Z, and was under his care for eight months, extending beyond the summer of 1915. There was no surgery, but medicines were applied to the throat and nostrils. With warm weather the symptoms were somewhat mitigated.

In April, 1916, there was another abscess in the right ear, accompanied by a persistent cough. The patient returned to the laryngologist, Dr. Z, who lanced the abscess and also inspected the soft palate, as far as that could be done by simply looking into the mouth without any instrumental aid, or any attempt to take a posterior view. Inadequate as this examination was, it showed that the soft palate was distended by tumefaction of some kind, and Dr. Z informed the patient of the abnormal condition which existed, adding that he did not know what the growth was and did not think it wise to interfere with it. A Wassermann test was made with negative result; but the eustachian catheter was not used, nor were the Valsalva or Politzer methods of inflation. The patient continued to visit Dr. Z up to August, 1916, when swelling again appeared in the right ear and lancing brought temporary relief; but the trouble soon returned, and Miss W., in a discouraged frame of mind, was looking forward to another repetition of the incision, when the condition of a tooth led her to consult Dr. Briggs, a dentist in whom she had confidence. This was a fortunate incident, for Dr. Briggs assured her that the throat was seriously affected and required radical treatment to reach the cause of the recurrent disorder in the ear. At his solicitation she came to my office, Sept. 30, 1916.

Examination.—At that time, in addition to mental and physical depression, the patient was suffering from a rasping cough and her throat was sore, though not acutely painful. Her chief discomfort was in the right ear, in which there was a sensation of tension and stuffiness, and she was strongly impressed with the notion that the time had come for another cutting of this much-incised organ. Tests of the hearing showed that it was decidedly impaired on the right side, and they also localized the trouble in the middle ear. Examination with the aural speculum indicated that there was considerable liquid in the right tympanitic cavity, escape being prevented by occlusion of the eustachian tube on that side.

The anterior view of the fauces showed, at the first glance, that the soft palate was in a very abnormal condition. It was distorted by some internal pressure causing it to bulge forward. The quinsy points were conspicuous; showing through the mucous membrane were small nodules, pale, firm and hard, but not tender under the touch. The postnasal mirror showed a small chink behind the soft palate on the left side; but the right was filled up by a swelling projecting from the soft palate into the nasopharynx and preventing the finger from entering the postnasal space. This adventitious structure was firm and gave no sign of inflammation. Neither of the eustachian eminences could be seen. Inflation by the Politzer method succeeded on the left side, but failed

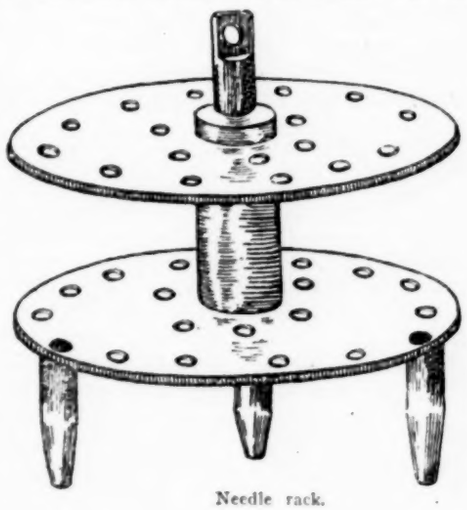
on the right. The eustachian catheter passed readily along the nasal floor but, when its beak reached the soft palate, it met an obstruction and could not be advanced farther, nor could it be rotated.

These examinations proved that a tumor of considerable size was embedded in the soft palate, and from the signs given to sight and touch, combined with the clinical history, I came to the conclusion that it was a chondroma, a judgment which was corroborated by the laboratory tests made subsequently. I informed the patient of what had been found, telling her frankly and firmly that the best treatment, indeed the only proper treatment, was the entire removal of the tumor: that this course would give her good prospect of recovery; but that partial, half-way measures would be of no advantage. She took a sensible view of the matter and agreed to a prompt operation.

Just here let me say that I claim no credit for recognizing this neoplasm. It was in an accessible locality and could be seen distinctly by posterior rhinoscopy. Any laryngologist should have made himself familiar with its chief features on his first inspection of the throat. The puzzling questions are, why one specialist never looked for it and why another, after seeing it, told the patient that he did not know what it was and considered it best to let it alone.

Operation and Results.—Two days later, October 2, the operation was performed under general anesthesia induced by ether. The right tonsil, which was somewhat morbid, was enucleated and the wound enlarged until it reached the level of the upper margin of the chondroma. This was dissected out. When its attachments had been severed, it was seen to have a lobular structure and came away in three pieces. Taken together these weighed a little more than an ounce. Bleeding was controlled by pressure, and the postoperative condition was normal.

The patient had a rapid convalescence. Although the right ear received no topical treatment, hearing became absolutely normal in forty-eight hours. The cough showed prompt improvement, and in ten days ceased entirely. Healing was complete on the sixteenth day, and there remained no disability of any description.



Needle rack.

More than five months have now elapsed since the operation, and no morbid sequels have appeared. I saw the patient within a fortnight, and she was in excellent health and spirits. There can be no doubt that the chondroma was the cause of all the varied symptoms from which she had suffered during six years and whose persistence threatened to bring her to invalidism.

COMMENT

I have given the history of this case thinking that it may prove both a caution and an incentive. We are all liable to err, and if oversights, such as those narrated, are frankly criticized, this is not done with a purpose to humiliate our colleagues, who appear to have been at fault, but in the hope that all of us may be stimulated to renewed appreciation of the importance of thoroughness in searching for causation.

Only by making a correct diagnosis and directing our treatment to the radical removal of the causes of disease can we do our full duty to our patients and attain that high professional ideal which combines wide knowledge of medical science with expert proficiency in the honored profession, which is our chosen vocation.

1906 Chestnut Street.

Practical Theories.—The practical effect of a belief is the real test of its soundness.—Froude.

STERILIZATION OF SURGEONS' KNIVES AND SCISSORS BY HEATING IN LIQUID PETROLATUM *

HENRY LYMAN, M.D., BOSTON

The subject of properly sterilizing knives and scissors has always given the surgeon more or less trouble. Boiling water or 70 per cent. alcohol, if applied long enough to be effective, inevitably destroys the edge, while the instruments so treated have a strong tendency to rust. It has been my practice for some time to sterilize needles which were to be used for drawing blood, by heating them in liquid petrolatum at 120 C. for twenty minutes. The needles may then be left for an indefinite length of time without danger of rusting, and are moreover coated with a film of oil which tends to prevent clotting. I soon noticed that needles so treated were peculiarly sharp and could be used and resterilized many times without losing their points. It occurred to me that the same method might well be employed on the scalpel and scissors of the surgeon with advantage, provided this heating did not affect the cutting qualities of the instruments. I therefore sharpened a knife to a razor edge, heated it in the oil at 200 C. for over half an hour, and again tested the edge. It was exactly as sharp as before heating, and repeated experiments with other knives and with scissors gave the same result. The reason for this seems clear. Both boiling water and alcohol attack steel, thus ruining the edge, while liquid petrolatum, being exceedingly inert chemically, has no such effect.

The first question which arises in our minds in this connection is, "Does oil, which may be considered dry heat, destroy organisms as quickly at the same temperature as does boiling water?" Since no adequate references could be found in the literature, I was obliged to investigate this point myself. I was fortunate enough to interest Dr. Harold C. Ernest in this work, and the experiments were carried out under his supervision in the bacteriologic department of the Medical School of Harvard University.

The following technic was employed: Strips of tin, used to simulate scalpels, were dipped into a culture of the organism to be investigated, dried, and dropped into a test tube containing about 10 c.c. of liquid petrolatum previously heated to the desired temperature in an oil bath. After the temperature had been maintained for ten minutes, the strip was removed and firmly stroked on a slant of agar nutrient medium. For fear the organisms might have been washed off in this process, the oil was treated with sterile bouillon, thoroughly stirred, allowed to settle, the bouillon pipetted off, and both the bouillon and the agar incubated. Numerous controls were run on each batch of determinations.

It was found by this method that the *Staphylococcus pyogenes-aureus* and *albus* were killed in ten minutes at a temperature of 105 C., and that anthrax spores, possibly the hardest form of life to destroy of which we know, were killed in ten minutes at 150 C. The staphylococci were killed at 150 C. in fifteen seconds. If, therefore, the surgeon will keep his knives and scissors in an oil bath at 150 C. for ten minutes, their cutting qualities will not be affected, they will not rust, and they will become the strongest link in the chain of asepsis, instead of being the weakest, as is the case under the usual method of sterilizing.

To obtain the best results, the oil used should have the following characteristics: it must be nonirritating, it must be chemically inert, it must be clear so that the instruments may be easily seen, and it must have the highest possible

* From the Huntington Memorial Hospital.

flash point on account of danger from fire. Animal and vegetable oils, such as sperm and cottonseed, have a tendency to polymerize on repeated heating and are therefore unsuitable. Liquid petrolatum fulfils all the conditions well; but as it costs from $6 to $7 a gallon at retail, it is expensive when a large sterilizer is to be used, although it may be used over again indefinitely. To avoid this difficulty, I have obtained from Alden Speare & Sons, Cambridge, Mass., a so-called cutting mineral oil at 75 cents a gallon which, in spite of being somewhat yellow, answers the purpose perfectly and which seems to destroy bacteria at the same temperature as liquid petrolatum. Its flash point is about 225 C. Doubtless any nonirritating hydrocarbon lubricating oil of good grade would answer the purpose.

Since thermometers are easily broken and constant temperature devices are expensive, the simplest way of telling when the oil bath has reached 150 C. is by an indicator. A small glass ampule containing chlorid iodid of mercury, such as was used in the Folin method for determining urea, may be placed in the coolest part of the sterilizer. This salt is a red powder at room temperature, turns yellow at 118 C., and melts to a clear amber fluid at 155 C. All that is necessary, therefore, is to keep the indicator melted for ten minutes. Since the oil if heated very hot will smoke and smell somewhat, it is as well to turn the gas or electricity partly off after the indicator becomes yellow.

NEEDLE RACK

The needle rack illustrated herewith, devised by Dr. R. D. Bell, facilitates the heating of these instruments in oil. As many needles as desired are placed in the rack, points down, and the rack lowered into a beaker full of oil, the oil heated at 150 C. for ten minutes, and the rack picked out with a sterile wire hook or mouse toothed forceps. It is allowed to drain for a moment or two, and then placed in a dry sterile receptacle with a cover to protect the contents from dust; an ordinary dressing jar does very well. The needles may be picked out by the butts with unsterile fingers as needed, and a large number may be thus kept ready for immediate use.

THE RESPIRATION OF SIMPLE CARDIAC FATIGUE

LEO RICEN, PH.D., M.D., PORTLAND, ORE.

I have observed a type of breathing which resembles the Cheyne-Stokes respiration in its first phase, but differs from it in its second phase, thereby constituting a type by itself.

Fig. 1.—Cheyne-Stokes respiration.

The Cheyne-Stokes type of breathing is usually represented in a graphic manner, as in Figure 1, in which *ab* corresponds to the period of apnea, which is followed by a series of respirations (*bc*) at first short and shallow and then gradually increasing in rate and volume until a maximum is reached, after which a gradual return to the apneic state takes place.

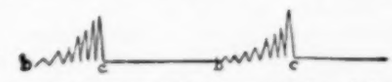


Fig. 2.—Respiration of simple myocardiac fatigue.

The type of breathing which I have observed is graphically represented by Figure 2. In it we have the same apneic state (*cb*) followed by a gradual increase period (*bc*); but the period *ca* (Fig. 1) of gradual decrease is lacking, being replaced by the period of apnea, which sets in immediately after the deepest and longest breath.

I have found this type of respiration in cases of cardiac fatigue before actual decompensation takes place. By a careful watching of the patient this symptom can be made use of for the prevention by proper treatment of serious consequences.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 1817)

POSTOPERATIVE RENAL INFECTION

This should be suspected when, during convalescence, the patient has a sudden chill, mild or severe, a rise of temperature, with or without pain in the affected kidney, and head symptoms, followed by irregular and remittent fever. This is true, of course, only when more obvious causes of these symptoms are excluded. The urine is at first scanty; later it may show albumin, blood, pus, casts and colon bacilli or other bacteria.

PYELITIS IN INFANCY

This disease is about three times as frequent in girl as in boy babies, and the colon bacillus is by far the most frequent germ of infection found. Smith[131] states that the pelvis of the kidney is the part most commonly affected, with the ureters and bladder generally normal. Some cases may show inflammatory changes in the kidney substance, due to extension from the pelvis of the kidney. Even in children, the right kidney seems to be the one most frequently affected in unilateral infection.

Smith gives a long list of references, but thus sums up the mode of infection:

> From the intestinal tract or some other source bacteria get into the lymphatic vessels and then into the blood, or possibly directly into the blood. They are transferred by the blood to the kidney. After reaching the kidney they pass through the glomeruli and are excreted at the pelvis. They may pass out of the body in the urine without doing any damage, or they may set up an infection at the point of excretion, that is, produce a pyelitis.

The colon bacillus probably comes directly from the intestinal tract. Smith and other writers agree that the gastro-intestinal tract should be properly treated in pyelitis, not only when the colon bacillus is the source of infection, for, as in adults, other bacteria may reach the kidneys and cause infection from such sources as the tonsils. Not only typhoid bacilli and tubercle bacilli, but also colon bacilli may pass through the kidney substance without causing any localized infection. While it is not thought that colon bacilli or other bacteria often travel upward, even in women, some injury may cause absorption of these germs, which are so constantly present in the genital organs of females.

There is a difference of opinion as to the frequency with which colon bacilli occur in the urethra of female children and of women. Alsberg[132] found colon bacilli in the urethra of adult women in 100 per cent. of the cases. On the other hand, Beeler and Helmholz[133] say that while pyelitis is much more common in young girls than in boys, the colon bacillus is not normal in the female urethra, and they came to this belief after examining thirty infant girls and thirty-one girls over 2 years of age. In infections not genito-urinary, in girls under 2 years of age, the colon bacilli are frequently found in the urethra.

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131. Smith, R. M.: Pyelitis of Infancy, Am. Jour. Dis. Child., September 1916, p. 235.
132. Alsberg: Arch. f. Gynäek., 1910, **90**, 255.
133. Beeler, Carol, and Helmholz, H. F.: The Bacteriology of the Urine in Healthy Children and Those Suffering from Extra-Urinary Infections, Am. Jour. Dis. Child., October, 1916, p. 345.

The symptoms of a pyelitis in a child are well described by Smith,[134] who states that the infection begins in a child with a chill and fever which is relapsing or remittent. He finds that a chill occurring in an infant under 2 years of age is very suggestive of this disease.

The nervous phenomena occurring in the beginning of this infection may even suggest a meningitis. There is apt to be frequent and painful micturition, but perhaps no other genito-urinary signs. Sometimes the patient is very pale and the abdomen tender, or a kidney region may be tender, while often the spleen is enlarged. There may be joint tenderness and herpes. With recurrences of fever there may be vomiting, and even coma may occur. The urine may show pus, or it may be clear if the ureter is blocked by the pus; hence every urinary excretion must be caught and examined in order to make the diagnosis, as the purulent urine is apt to be intermittent. There may be albumin in the urine.

Smith says that the prognosis is generally good, that the disease is rarely fatal. The acute symptoms, however, may last several weeks, and the recovery may be protracted; or the infection may persist, or recurrences may take place for years. Later the bladder may become infected, and there may be abscesses in the kidney structure. There may be a history of sore throat or some intestinal upset occurring immediately before this infection.

The treatment consists in locating, and removing if possible, the causative infection. Purgatives should be given, and colon washings are often advisable. A liberal amount of water should be given the patient, so as to encourage a free outflow of pus. Alkalies, such as potassium citrate, are advisable, given in the dose and frequency sufficient to alkalize the urine. As cautioned with adults, the urine should not be made alkaline for too long a time; or, if it is found alkaline (which is rare), it should be made acid. Hexamethylenamin in proper dosage for the age of the patient may be tried, as it will sometimes be found of advantage, although it often fails, especially in colon infection. Vaccines may be tried if deemed advisable and if the disease is protracted; surgical measures may be necessary.

HEMATOGENOUS INFECTION OF THE KIDNEYS

In 1906, Brewer[135] first described this condition as a distinct pathologic entity. In a series of subsequent communications he has clarified the understanding of this not infrequent condition, and shown the best treatment for it. One of his latest papers[136] brings the subject nearly up to date.

Pathologically, the local lesion is caused by the plugging of one or more blood vessels, with groups of organisms acting as emboli. Inflammatory and protective processes begin around this infarct, and the center becomes a minute abscess. Several of these plugs and subsequent abscesses may run together and form larger abscesses, or a plug of a larger arteriole may cause a large section of the kidney to break down at once. If the condition is neglected, these larger abscesses may not break into the urinary tubules or into the kidney pelvis and be thus evacuated, but may rupture the kidney capsule and form a perinephritic abscess.

The origin of these localized kidney infections may be a serious infective process or some simple infection, such as a boil, a carbuncle, tonsillitis, a tooth or sinus infection, or an infected wound. The infarcts in the kidneys may be bilateral, but are frequently unilateral.

Brewer recognizes three types of hemic kidney infection: The first is the serious and fulminating type, which is rare. In this form there are symptoms of acute general infection, with the kidney signs very hazy, and death may occur almost without a kidney symptom. However, when both kidneys are affected there may be total suppression of urine, rapid prostration, and death will result from sepsis and uremia. When only one kidney is thus seriously attacked, death is due to sepsis.

The second type is serious, but does not become acute as rapidly; however, the prognosis is bad, although the disease reaches a fatal issue more slowly. In this type the progress is so rapid and the local signs may be so few that the whole kidney may be destroyed before a diagnosis has been made, while the function of the other kidney also may become impaired.

The third is a milder type in which the condition occurs and the patient recovers often without a diagnosis. This type of mild infection frequently accounts for slight unexplained rises of temperature, followed after some weeks by an unaccountable pyelitis.

This disease or kidney infection may not begin with a chill, unless it is of the severer type, but the temperature may rise to 103 or 105, with a pulse rate of 120. The toxemia is severe, and the general condition of the patient may resemble a severe hidden or central pneumonia. Soon he complains of vague pains in the abdomen or in the flank on the affected side. If the right kidney is affected, the symptoms and signs may resemble an acute appendicitis or an acute gallbladder infection, and from these conditions it may be difficult to make a differential diagnosis. The affected kidney may secrete but little urine, while the other kidney may secrete freely, or even more urine than normal. Careful examination of the urine, however, may show traces of albumin, blood and pus, and in doubtful conditions the ureters should be catheterized. Brewer considers the presence of a decided unilateral costovertebral tenderness a pathogenic sign. In these acute cases he believes the only safe treatment is immediate nephrectomy.

The milder forms of this infection, which are more frequent, often resemble appendicitis, cholecystitis, or abscess of the liver.

If the disease is not recognized and not surgically treated, it progresses to the formation of large abscesses, as just stated, and even to pyonephrosis. These abscesses are smaller and fewer than occur in the acute or fulminating type, and cutting down on the kidney, stripping the capsule, and opening and draining the cortical abscesses may often save the kidney. A neglected case may require complete nephrectomy. When a diagnosis has been made the treatment is rest, plenty of water, and hexamethylenamin.

Brewer believes the reason this disease is so generally unilateral is that a well kidney may throw off such an infection, while a kidney which has had some previous lesion or disturbance, or a kidney that is loose or mobile, is more susceptible to infection. He has isolated the *Bacillus coli*, the *Streptococcus*

134. Smith, R. M.: Recent Contributions to the Study of Pyelitis in Infancy, Am. Jour. Dis. Child, March, 1913, p. 273.
135. Brewer: Surgery, Gynec. and Obst., May, 1906, p. 485.
136. Brewer: New York Med. Jour., March 20, 1915, p. 556.

pyogenes, the *Staphylococcus pyogenes-aureus* and the *Bacillus typhosus* in these cases. He has come to the conclusion that hematogenous infection is doubtless the cause of the greater number of renal sepsis cases.

TUBERCULOSIS OF THE KIDNEY

The kidney is not an infrequent location of this disease; unfortunately, however, often the disease is not discovered until a sepsic infection has been added to the primary condition, that is, pyelitis has occurred. It occurs most frequently at the age when general tuberculosis occurs, namely, from adolescence to 35 or 40 years of age. In the beginning the disease is probably always unilateral, and ordinarily the other kidney seldom becomes involved, unless the patient has been seriously neglected. This disease of the kidney is often secondary but frequently it is a primary infection; hence the urgency of early diagnosis and its eradication lest the disease generalize and affect other parts of the body.

The pathology is that of tuberculous lesions — first small points of infection, then nodules, later destruction, and finally abscess formation. The pathologic findings seem to show that while certain lesions may be evacuated and become cured, or may heal as do tuberculous deposits in the lungs, still other parts of the kidney show continued tuberculous degeneration. In other words, there is no proof that a tuberculous kidney ever becomes permanently or safely healed; consequently, the only treatment, after the diagnosis has once been made, is nephrectomy.

Probably the involvement of the ureter or of the bladder is always secondary, and such infection would not have occurred had the diagnosis been made early.

The usual symptoms are: pain, not always a factor, as there may be only a sense of discomfort in the abdomen, more noticeable on the affected side; backache; a frequent desire to urinate, and as the disease progresses, usually a slight amount of blood in the urine, or a real hematuria. Soon pus appears.

As these symptoms progress, there is generally afternoon or evening fever, possibly night sweats, loss of appetite, loss of weight, and general debility. Varying amounts of albumin and casts are usually found in the urine. There may be occasional attacks of colic caused by obstruction of the ureter with pus or débris, with the usual symptoms of rise in temperature, pain, possibly vomiting and chills, and later evacuation of urine that is loaded with pus.

Blood or pus in the urine, as repeatedly stated in this discussion, necessitates examinations to determine the source. The frequency of tuberculosis of the kidney should cause one to suspect this disease when pus or blood, or both, appear in the urine. Physical examination may readily show which kidney is affected. Carefully cleansing the genitals of all smegma, centrifuging the sediment of the suspected urine, and staining for tubercle bacilli will frequently reveal the germ, if it is present. Or, the urine obtained by a catheter passed into the ureter of the involved kidney may be thus treated. Failure to find tubercle bacilli by these methods does not prove that the disease is not tuberculosis. The guinea-pig test with the sedimented, centrifuged urine is apparently reliable, and the number of weeks necessary for such a test to give a positive or negative result may be shortened by exposing the injected animal to the Roentgen ray, as has been shown by Murphy and Ellis[137] and by Morton.[138] Observation of the temperature of the patient for several days will aid in deciding whether or not the kidney is tuberculous.

If the kidney is tuberculous, there is no effective treatment except nephrectomy, and the ureter, if infected, should be removed as low down as possible. Tubercle bacilli may continue to appear in the urine from an infected ureter or infected bladder for weeks or even months after the operation, but they generally disappear. Of course if the other kidney is diseased, the operation would not be advisable, but, as stated, the two kidneys are rarely affected with tuberculosis at the same time. After the operation the remaining kidney slowly hypertrophies, and within several months is able to carry on the ordinary functions of both kidneys.

When the offending organ has been removed the patient should for a long time be treated as though affected with pulmonary or general tuberculosis. This means rest, fresh air, good food, the prevention of such exertion as will cause fever or loss of weight, and such exercise or overfeeding as will overtax the kidney before it is able to do its double work. He also generally requires iron for some time. Vesical irritability may be relieved by alkalies, if the urine is acid. If there is considerable infection of the bladder, it may be carefully washed out for a time. Phenyl salicylate may be given in small doses; hexamethylenamin, if used, should be given in small doses, as great care is necessary in administering any drug which tends to irritate the remaining kidney.

MALIGNANT TUMOR OF THE KIDNEY

The cardinal symptoms of cancer and sarcoma of the kidney are pain, blood in the urine, and palpable enlargement of the kidney. The pain may be local, or may be referred to different parts of the abdomen, to the back, to the epigastrium, or downward. If the right kidney is involved, the disturbance must be dissociated from a gallbladder infection. The pain may be dull, boring, or burning in character. In occasional cases there is no pain except that of the dragging of the tumor, which may be alleviated by a support of the abdomen and the tumor. Sometimes there are shooting nerve pains like an intercostal abdominal neuralgia or neuritis.

In the majority of cases, blood is found in the urine, and by the time the patient seeks help, there is generally a tumor mass. A tumor in the kidney region may be of some other organ than the kidney, it may have displaced a kidney, or it may be an abnormally large kidney from hydronephrosis or pyonephrosis. The centrifuged urine will generally show not only blood, but also pus and cells of broken down tissue, often characteristic of the growth. With a demonstrable tumor and the urine showing this pathologic condition, the affected kidney is clearly revealed. Of course, catheterization of the ureters not only will give more concentrated pathologic findings in the urine, but also will show the condition of the other kidney.

The general condition of the patient is an important indication of the gravity of the lesion. There may be secondary disturbances, weakness, anemia, emaciation, and gastro-intestinal abnormalities.

Braasch[139] finds that renal growths are more frequent in men than in women.

137. Murphy and Ellis: Jour. Exper. Med., 1914, **20**, 397.

138. Morton: Jour. Exper. Med., 1916, **24**, 419.

139. Braasch, W. F.: Clinical Data on Malignant Renal Tumors, THE JOURNAL A. M. A., Jan. 25, 1913, p. 274.

Renal function tests and blood tests should always be made and the efficiency of the other kidney determined before a nephrectomy is done; pyelography is occasionally necessary.

Whether or not life will be prolonged by nephrectomy depends on how far the case has progressed. As so often repeated, every bleeding into the urine should be investigated in order that an early diagnosis of a kidney growth may be made before an operation is of no avail. While cancer of the kidney may be primary, in the majority of cases it is secondary.

Carcinoma of the kidney causes a great deal more pain than does tuberculosis, and the progress of the disease is much more rapid, although, as stated above, it is sometimes devoid of pain. Colicky pains may occur when small clumps of degenerated tissue or blood clots pass down the ureter.

Sarcoma of the kidney is perhaps more frequent than carcinoma, and the progress to a fatal issue more rapid. Like carcinoma or sarcoma in any other part of the body, and perhaps particularly when affecting the kidney, on account of late discovery, recurrence of these growths after nephrectomy is frequent.

HYPERNEPHROMA

This growth of the kidney is more frequent than has been recognized. It has a tendency to cause metastases and although often accompanied by pain, profuse bleeding may be the only symptom. Generally there is a palpable tumor. When cystoscopy reveals hemorrhage and enlargement of one kidney, when there is no pus in the urine, and no symptomatic or roentgenographic evidence of stone, hypernephroma or some other malignant growth should be diagnosed, and an early operation is necessary to avoid metastases and recurrence of the growth.

CYSTIC DISEASE OF THE KIDNEY

In this condition there are multiple cysts in the kidney structure, and one or both kidneys may be involved. The symptoms are enlargement, recurrent pains, and more or less profuse hematuria. Sometimes these patients live for many years and endure well the loss of blood; others quickly become anemic; still others develop serious insufficiency of the kidneys. Surgical cure, even when only one kidney is involved, cannot be promised, as the mortality is great, and when both kidneys are involved, surgical interference should probably not be attempted.

Congenital small cysts may occur on the kidneys, and perhaps cause no symptoms for a long time. However, these nodular kidneys increase in size and become tumor masses, and sooner or later the kidney structure becomes involved, resulting in kidney insufficiency.

(To be concluded)

The Growth of Filtration Systems.—It is an interesting fact that a very large number of cities which formerly used water without purification now have water-works filtration plants. In 1900 less than 2,000,000 people were using filtered water; in 1910 approximately 10,000,000 were using it, while at the present date about 20,000,000 people are served by filtration plants. In 1900 fifty cities were using filtered water, and in 1917 there were 781 cities thus supplied, a truly remarkable increase. Reliable data pertaining to typhoid show that the death rate has decreased at about the same proportion as filtered water has increased. This alone is sufficient reason for the rapid adoption of filtration plants by municipalities.—*The American City*, June, 1917.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BETANAPHTHOL BENZOATE (See N. N. R., 1917, p. 197).

Betanaphthol Benzoate-Anthony-Hammond Chemical Works, Inc.—A non-proprietary brand complying with standards for betanaphthol benzoate.

Manufactured by Anthony-Hammond Chemical Works, Inc., New York City.

CALCIUM CACODYLATE.—Calcii Cacodylas.—A calcium salt of cacodylic acid containing from 43.5 to 48 per cent. of arsenic in the form of cacodylic acid and free from arsenite, arsenate and monomethylarsenate.

Actions and Uses.—Calcium cacodylate has the mild arsenic action of cacodylates. Its action is essentially the same as that of sodium cacodylate but it is preferred by some.

Dosage.—0.045 Gm. (¾ grain), repeated if necessary, at twenty-four hour intervals.

Ampuls Calcium Cacodylate Solution-Mulford.—Each ampule contains calcium cacodylate 0.045 Gm. (¾ grain) in 1 Cc. sterile physiological sodium chloride solution.

The calcium cacodylate used in the preparation of these ampules complies to the following tests:

No turbidity is produced in 10 Cc. of an aqueous solution of the salt (1:20) by 1 Cc. of calcium chloride test solution, either in the cold or upon heating (*monomethylarsenate*). No yellow precipitate is produced in an aqueous solution of the salt (1:20) by ammonium molybdate test solution; nor is a yellow precipitate produced by sodium thiosulphate test solution; nor is a yellow precipitate produced by hydrogen sulphide test solution. No white precipitate is produced in an aqueous solution of the salt, after acidulating with hydrochloric acid, by barium chloride test solution.

Dissolve 1 to 2 Gm. calcium cacodylate, accurately weighed, in 25 Cc. distilled water, then titrate with normal hydrochloric acid volumetric solution, using methyl orange as indicator. Each gram of calcium cacodylate requires not less than 4.3 Cc. nor more than 5.6 Cc. of normal acid; if to the finished titration phenolphthalein solution is added, 5.8 to 6.4 Cc. of normal volumetric potassium hydroxide is required to produce a red color for each gram of calcium cacodylate, showing not less than 43.5 per cent. nor more than 48.0 per cent. arsenic (As). Theoretically calcium cacodylate, $Ca[(CH_3)_2AsO.O]_2$, contains 47.7 per cent. arsenic.

Prepared by H. K. Mulford Company, Philadelphia.

Calcium Cacodylate occurs as a white, granular powder, almost odorless or having a slight odor of hydrogen arsenide. It is very soluble in water.

Calcium cacodylate loses about 8.5 per cent. of its weight when dried at 100 C.

The aqueous solution of calcium cacodylate is alkaline to litmus, but acid to phenolphthalein.

With silver nitrate test solution an aqueous solution of the salt (1:20) yields a white precipitate, soluble in nitric acid or ammonia water.

A mixture of 1 Cc. of an aqueous solution (1:100) of the salt with 10 Cc. of hypophosphorous acid develops the disgusting odor of cacodyl (caution on account of the extreme poisonous nature of the gas).

CHLORAZENE (See N. N. R., 1917, p. 140).

The following dosage form has been accepted:

Chlorazene Surgical Cream.—It contains chlorazene 1 Gm. in 100 Gm. of a base composed approximately of sodium stearate 15 per cent. and water 85 per cent.

BORCHERDT'S MALT EXTRACT WITH COD LIVER OIL.—A liquid stated to be composed of cod liver oil 20 per cent. and Borcherdt's Malt Extract Plain, 80 per cent.

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)

Prepared by the Borcherdt Malt Extract Co., Chicago.

BORCHERDT'S MALT EXTRACT WITH CREOSOTE.—Each 100 Cc. is stated to contain beechwood creosote 0.83 Cc. (4 minims per fluidounce) in Borcherdt's Malt Extract Plain.

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)

Prepared by the Borcherdt Malt Extract Co., Chicago.

BORCHERDT'S MALT EXTRACT WITH CASCARA SAGRADA.—Each 100 Cc. is stated to represent cascara sagrada 12.5 Gm. (60 grains per fluidounce) in Borcherdt's Malt Extract Plain.

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)

Prepared by the Borcherdt Malt Extract Co., Chicago.

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SATURDAY, JUNE 23, 1917

THE EFFECT OF WAR ON DIETARY PREJUDICES

A recent number of The Journal[1] contained two items, presented primarily in the form of news, which are of more than passing interest because they show how unjustifiable prejudices may be overcome by the exigencies of the times. It is announced that the legal restriction of the sale of skimmed milk in New York has been withdrawn. The Wicks bill, which has already taken effect, provides that the prohibition contained in the law regulating the sale of adulterated milk shall not apply to skimmed milk, which is clean, pure, healthy, wholesome and unadulterated, except by skimming, if it is sold for and as skimmed milk. This bill also stipulates that prohibitions against the sale of cheese made from adulterated milk or cream shall not apply to pure skim-cheese made from milk which is otherwise clean and pure except by skimming. It was high time that the unjust and inadvisable exclusion of cream-free milk and food products made therefrom should cease to bear the authority of law. There may have been a time when a drastic measure was called for to prevent the fraudulent sale of skimmed milk as an adulteration or substitution for whole milk. But the restriction had long served to exclude from human use a wholesome and inexpensive food of exceptional nutritive merit.

Aside from the fat contained in the separated cream, skimmed milk — more properly designated separator milk in view of the common creamery practices of today — contains all the foodstuffs of the milk and has no mean food value. But its usefulness in the dietary must not be measured merely in terms of calories. The salts of the milk, including the highly desirable calcium, are present in the fat-free product, along with the water-soluble vitamin that has been demonstrated to promote nutritive well-being in ways formerly unsuspected. Separator milk, in contrast with the skimmed milk of a generation ago, is quite as fresh and can be quite as clean as, or presumably cleaner than, the whole milk of which it represents a fraction. For a variety of culinary purposes it answers as well as the fat-containing product. It is as fortunate as it is sensible that so valuable a food product need no longer be relegated solely to the use of swine and poultry, or converted into putrescible wastes.

The second item refers to the New York ordinance permitting the use of horse flesh as food. As Commissioner Emerson expressed it, this has made it possible for many of the poor of New York to keep the soup-pot boiling during the past winter who otherwise could not have done so. Why the musculature of the horse should be less wholesome than that of the cow, hog, sheep or hen has never been clear to an unbiased questioner. Like the unfounded proscription of young veal,[2] the prejudice against horse flesh must at length yield to intelligent criticism. No one would argue for any superiority of the food products referred to; but in times of scarcity, at least, it is folly to base the popularity or unpopularity of any item that may increase the dietary solely on inherited prejudices which, in ultimate analysis, are devoid of any known hygienic or physiologic justification.

1. Sale of Skimmed Milk Legalized, The Journal A. M. A., May 26, 1917, p. 1565; Food Supply in War Time, p. 1576.

SPECULATIONS ON THE GENESIS OF SOME DISEASES OF THE BILIARY SYSTEM

Consideration will bring to mind various instances in which antagonistic mechanisms are concerned in the body. If flexor and extensor muscles attached to the same movable structure were stimulated to contract simultaneously, the muscular efforts would usually result in a most unfortunate inability to execute the movement that was actually intended. It is clear, therefore, that when two sets of muscles can act on a movable organ such as an eye or part of a limb in such a way that they would antagonize one another, some device must be available to prevent this conflict. This is provided by the phenomena of inhibition whereby during the performance of a particular reflex movement the contractions of the muscles opposing this are inhibited. Obviously the inhibition of the one group must proceed simultaneously with the excitation of the other group, to insure a well controlled and steady motion.

To the English physiologist Sherrington above all is due our knowledge of what is frequently called the reciprocal relation of antagonistic muscles. Something of the sort here referred to characterizes the behavior of the alimentary tract in more or less well marked manner from the lower part of the esophagus to the rectum. In front of a part that is excited, as for example by the distention produced by a mass of food in the lumen of the gastro-intestinal tube, a relaxation occurs. Behind the stimulating mass, on the contrary,

2. Is "Bob Veal" Toxic, editorial, The Journal A. M. A., March 15, 1913, p. 834; "Bob Veal," June 7, 1913, p. 1795; Immature Veal as Food, March 11, 1916, p. 820; Immature Veal and Hard Palates, Nov. 11, 1916, p. 1449.

there is increased tonic contraction with greater vigor of rhythmic movement. This reciprocal relationship, working only in one direction which obviously facilitates the onward progress of the contents of the intestine, has been called the "law of the intestines." The bolus causes a reflex contraction of the muscle above it, and a reflex inhibition or dilatation below.

Meltzer, who studied these phenomena long ago, designated these relations by the more general term of the law of contrary innervation. He has long directed attention to the general principle that "impulses inhibiting the action of antagonists must be an integral part of any kind of movement in the animal body." Meltzer has also been active in indicating how a disturbance in the contrary innervation may become of pronounced pathogenic significance. Thus he has defined intestinal and gastric colic as being due to a disturbance of the law of contrary innervation — namely, that the caudal end of the bowel remains contracted and stationary while the cephalic end contracts and progresses forward. The volume between the two contracted limits becomes gradually smaller while the contents of this volume re nain practically unchanged; hence the increasing tension which leads to the unbearable colicky pain.

More recently Meltzer[1] has applied somewhat analogous considerations to problems in the diseases of the bile ducts and the gallbladder. The latter is provided with muscular fibers, the contraction of which will free this storage organ of its fluid contents. The papilla of Vater at the termination of the common bile duct is also provided with circular muscular fibers which can contract to close the orifice. It is clear, says Meltzer, that the muscle fibers of the gallbladder and those of the papilla are antagonists. Applying our knowledge of the mechanism of the urinary bladder, and more generally the law of contrary innervation, the physiologic mechanism of bile storage and bile discharge is quite simple. During the storage the muscle fibers in the papilla are contracted and those of the gallbladder are inhibited; during the discharge, the gallbladder contracts and Oddi's muscle is relaxed; the bile has then no other way out but into the duodenum.

What brings about, at suitable intervals, this well regulated alternating discharge and storage of the bile? Meltzer believes that the discharge of chyme into the duodenum provokes the performance of the reciprocal reflexes. In his own words, it seems quite safely established that the physiologic discontinuous character of the flow of bile into the duodenum is regulated by a reflex mechanism, dominated by the law of contrary innervation; that the integrity of the gallbladder is an important part in this reflex mechanism; that the discharge of bile can be greatly curtailed by the absence or a restriction of the discharge of chyme from the stomach into the duodenum, and that the discharge of bile through the papilla of Vater into the duodenum is greatly enhanced by the presence in the lumen of the latter of peptone or albumoses.

On this basis, pathologic stasis, as contrasted with physiologic storage of the bile, might arise from a variety of causes including the absence of sufficient chemical products of digestion to promote the normal functioning of the papillary reflex. The assertion is even ventured that "the abstaining from taking proteins or partaking them infrequently or in minimum quantities may prove to be another factor in the pathogenesis of biliary diseases."

As a practical outcome it is suggested as advisable to partake of comparatively frequent meals, although they need not consist of large quantities, and that the meal shall contain foods which readily send peptone and albumoses into the duodenum. The principle ought to be especially observed in infectious diseases during which the bile contains the causative organisms. In typhoid, for instance, food should be administered every two hours, and the food should contain materials which may readily be converted into peptone and albumoses. The frequent elimination of the bacteria-laden bile may be the means, Meltzer further states, of preventing the development of cholangeitis and cholelithiasis. These suggestions lead us to interesting speculations; but our knowledge of the physiology of the biliary mechanism will need far more elucidation and extension before the "meatless days" of struggling Europe or other forms of a low protein regimen can be made clearly responsible for the incidence of biliary disease.

1. Meltzer, S. J.: The Disturbance of the Law of Contrary Innervation as a Pathogenetic Factor in the Diseases of the Bile Ducts and the Gallbladder, Am. Jour. Med. Sc., 1917, **153**, 469.

THE FREQUENCY OF TUBERCULOUS INFECTION OF THE LUNGS

The old tradition that "every one has a little tuberculosis" was converted into a demonstrated fact not many years ago by careful anatomic studies. In 1900, Naegeli in Zurich reported that he had found recognizable tuberculous lesions in 97 per cent. of the bodies examined by him. Although this statement did not at once receive universal acceptance, and much lower figures were reported by others, yet it is now generally recognized as being quite correct, other pathologists, especially Burkhardt, having obtained similar results. Until recently we have lacked comparable investigations on the population of this country, where, in view of somewhat different living conditions, the incidence and behavior of tuberculosis might perhaps be different. An interesting study of a relatively small number of bodies by Opie[1] in St. Louis, however, has established the universality of tuberculous infection in that community. Opie's material, while smaller in amount than that of the German observers, is of

1. Opie, E. L.: The Focal Pulmonary Tuberculosis of Children and Adults, Jour. Exper. Med., 1917, **25**, 855.

particular value, because, by making roentgenograms of the lungs under examination, lesions were located much better than they can be by unaided dissection.

As pointed out by Ghon in his important monograph on pulmonary tuberculosis in children, the lesions in the lungs during the first few years of life may occur in any part of the lung, and usually are accompanied by involvement of the lymph glands that receive the drainage from this area, this lymphatic tuberculosis usually being extensive and often dominating the tuberculous process. In ninety-three children under 18 years of age, Opie found that eleven children had died of tuberculosis, and that of the remaining eighty-two children dead from other causes, eleven showed tuberculous lesions. The nonfatal tuberculous lesions were found only in children over 2 years of age, and increased in proportion as age advanced; that is, of the children from 2 to 5 years of age, 27 per cent. showed nonfatal tuberculosis, those from 5 to 10 years old showed 33 per cent. incidence, and those from 10 to 18 years old, 62.5 per cent. Of fifty adults, however, every one showed recognizable tuberculous lesions. In the adults, however, two distinct types of tuberculous lesions were recognized. One type, consisting of encapsulated caseous or calcified tubercles, with a correspondingly late type of lesions in the nearest lymph glands, seems to represent unquestionably healed or latent childhood infections. The other type is the familiar apical lesion, tending to spread diffusely through the apex and unaccompanied by caseation or calcification of the regional lymphatic nodes; this lesion may heal completely, progress to a fatal termination, or remain in a latent condition. The apical type of pulmonary lesion is not found in young children, but increases in frequency with age. In many adult bodies, both types of lesions are found.

From these observations the prevailing opinion that our resistance to tuberculous infection during adult life is due to a more or less complete immunization through infections received and overcome in youth receives strong support. It is seen that tuberculosis infection, active, latent or healed, is practically always present in adults, and that, in adults, reinfections take on a different character from the infections of childhood. In the young person infected for the first time with tuberculosis, the lesion assumes the features seen in susceptible animals inoculated with tubercle bacilli, for the infection spreads to the regional lymph glands and usually produces considerable caseation before it is overcome by the development of a specific increase in resistance. In the adult, presumably because of the persistence of this acquired partial immunity, the apical lesion usually pursues a chronic course and does not spread to the lymph glands; this is a characteristic of second infections in animals already tuberculous which was observed first by Koch. The healed tuberculous lesions found in the lungs and peribronchial glands of adults are truly vaccination scars.

THE PATENT LAWS AND PATENT OFFICE PRACTICE

The inequity of our patent laws, or possibly it would be more correct to say, of the interpretation of our patent laws, has been commented on many times in THE JOURNAL. THE JOURNAL also has had occasion to call attention to patents that have been issued for obviously unscientific and quackish devices and preparations. The cases of the preposterous gas-pipe fake "Oxydonor" and the creatinin mixture for the alleged conferring of immunity against diphtheria, pneumonia, scarlet fever, syphilis, tuberculosis, etc., are cases in point.

In a patent issued the early part of this year for the "discovery" of a method of flavoring Epsom salt, the patent office has, in fatuity, piled Pelion on Ossa. The "inventor" declares that his invention relates to a pharmaceutical preparation and a special method of treatment of the medicinal agents whereby said agent will be rendered much more efficient in character. He further avows that the "prime object" of his "invention" is to "disguise the normal taste and impart an agreeable odor or smell to salts commonly employed as a cathartic." Parenthetically it may be said that probably not a day passes that some physician in the United States does not do substantially the same thing when writing a prescription. The "inventor" further claims that the object of his "invention" is to utilize the salts as a vehicle to carry an antiseptic and anesthetic agent whereby the salts when administered as a cathartic "will also act beneficially on the entire digestive tract" and "whereby cramped and spasmodic conditions are at once relieved with a resulting cure of flatulency, indigestion, sick and sour stomach, colic and the destruction of worms, etc."

Such claims are so absurd that the only excuse for commenting on them is the effect they have on the public mind. The layman reading the specifications of this patent would naturally conclude that an invention of great importance had been made—of such importance as to warrant the government in rewarding its inventor by granting him a seventeen year monopoly on the sale of his invention.

The law requires that, to be patentable, inventions shall be new and useful and shall show a higher degree of skill in their inception than is naturally to be expected from those who are skilled in the arts to which the inventions belong. It has been decided again and again that physicians' prescriptions are not patentable because it is assumed that an educated physician will utilize his knowledge of pharmacy in devising proper compounds of medicines to meet the indications of disease. When a physician prescribes a dose of Epsom salt to be taken in one of the official aromatic waters, he does not produce or create a new invention by so doing. Of course, in one sense every prescription is an invention — an invention to meet the conditions presented by the patient — but such inven-

tions are not patentable, because they represent the ordinary skill of a physician in carrying on his vocation.

If the patent office goes on granting patents for such "inventions" as flavored Epsom salt, and it should be found financially profitable to secure such patents and place the products on the market, it will only be a matter of time before the materia medica will be so restricted that a physician will be unable to write a prescription without infringing somebody's patent.

The splendid conception of the framers of our constitution in providing a plan for promoting progress in science and useful arts by granting to inventors for a limited time the exclusive use of their inventions, in exchange for the publication of full knowledge thereof, is being debased. No branch of our government is of greater importance to the progress of the country than the patent office, provided that office is intelligently administered. When the patent office is used, however, for an extension of the nostrum business, founded on the abuse of patent and trade-mark laws, it becomes a menace to the public health. The objects of the patent law are being defeated by the practices of the patent office.

THE CALCIUM CONTENT OF THE BLOOD

The increasingly numerous studies on the composition of the blood under varying conditions within both physiologic and pathologic ranges are serving to emphasize a rather remarkable constancy in the chemical make-up of the circulating fluid. The older idea that elements in the blood were increased or diminished according to special circumstances has been largely discredited by the facts of experimental investigations. There is no pronounced addition to the content of sugar in the blood when carbohydrate is ingested in abundance; nor is there, on the other hand, a disappearance of the sugar when the diet fails to include a supply of its sources. On the contrary, an effective regulatory mechanism maintains a degree of fixity in the composition of the blood that insures a medium of nearly uniform character, aside from such slight alteration as local increments or withdrawals of substances may occasion before the device of adjustment has an opportunity to perform.

The quoted instance of the blood sugar is in no sense an isolated illustration. The maintenance of the neutrality of the blood, with its concomitant excretion of acid, is an example of this regulatory efficiency. Indeed, as L. J. Henderson[1] has remarked, of all forms of organic regulation it probably is that which, quantitatively and in all its phases, we now most clearly understand. There is also a striking regulation of the amount of water in the blood. When large quantities of water are drunk, an increasing secretion of urine follows. The blood is not noticeably diluted. The increased secretion of urine is the expression of "the effort of the body to rid itself of unnecessary water."[2] The regulation of the proportion of water in the blood can be placed side by side as regards delicacy with the regulation of its reaction and components; its content of sugar, urea, salts and other substances.

The element of regulation is an outstanding feature of biologic phenomena. As Haldane has expressed it, the internal environment which is maintained so constant is but the expression of a balance between activities which disturb and activities which restore it. A striking illustration of the degree to which this may be secured is afforded by recent investigations on the calcium of the blood. Thus Meigs and Blatherwick[3] have found that the calcium content of cow's plasma is surprisingly constant. It is somewhat over 0.11 per cent. in very young heifer calves, and falls off gradually with increasing age until it reaches about 0.010 per cent. toward the end of the first year, from which point it remains nearly constant. Their results indicate that it is not appreciably altered by pregnancy, lactation, or by considerable changes in diet. Their highest figure for plasma calcium has been 0.0114 per cent., and their lowest, 0.0086 per cent.

To one not appreciative of the regulatory aspects of metabolism, these facts with respect to calcium might almost seem improbable because of the constant withdrawals of lime that must be made by pregnant animals that are building tissues rich in this element and by lactating individuals secreting a milk containing a liberal content of calcium. But the remarkable constancy of blood calcium, found by Meigs and Blatherwick at times when the mobilization of calcium must be very great compared to the amount present in the bones, has been substantiated in other ways by the studies of Halverson, Mohler and Bergeim[4] at the Jefferson Medical College in Philadelphia on the calcium in the blood of human subjects in tuberculosis, as recently described in THE JOURNAL. No marked deviations from the normal were observed in the calcium content of the serum of patients in the various stages of the pulmonary disease. Even when a high milk diet, notably rich in lime, was furnished over long periods, the blood calcium values were not increased above normal. The calcium content of the blood serum of normal human adults appears to range between 9 and 11 mg. per hundred c.c., usually, however, below 10.5 mg. The maximum variations observed in tuberculosis were from 8.4 to 11 mg. of calcium per hundred c.c.

1. Henderson, L. J.: The Excretion of Acid in Health and Disease, The Harvey Lectures, 1914-1915, Philadelphia, J. B. Lippincott Company.

2. Haldane, J. S.: Organism and Environment, 1917, p. 7v.

3. Meigs, E. B., and Blatherwick, N. R.: Calcium and Phosphorus in the Blood of Lactating Cows, Proc. Am. Soc. Biol. Chem., Jour. Biol. Chem., 1917, **29**, xi.

4. Halverson, J. O.; Mohler, H. K., and Bergeim, Olaf: Calcium in the Blood in Tuberculosis, THE JOURNAL A. M. A., May 5, 1917, p. 1309.

From the Harvard laboratories likewise has come new evidence for this constancy of the calcium content of human blood. In the great majority of subjects, according to Lyman,[5] the figures vary little. Even in cases of advanced uremia, in which the total nitrogen was extremely high, the calcium was not increased. On the other hand, the hemophiliac and the case of purpura hemorrhagica were not lower than what we may regard as normal. The average for males was 6.1 mg. of calcium per hundred c.c. of blood; while that for females was 7.1, a difference sufficiently great to stimulate further investigation.

It is pertinent to inquire how this great nicety of regulation can be attained, particularly in cases in which there must at times be a deficiency in the intake of calcium. A partial answer has been presented by Halverson, Mohler and Bergeim.[4] The total blood of a 60 kg. man contains about 0.3 gm. of calcium. The bones contain approximately 4,000 times as much. These investigators add this significant comment: With this great reserve supply of calcium, a portion of which is available, as is indicated by the great constancy of blood calcium under varying diets and conditions, a physiologic basis for the administration of calcium salts in tuberculosis has yet to be demonstrated.

5. Lyman, H.: The Calcium Content of Human Blood, Jour. Biol. Chem., 1917, **30**, 1.

Current Comment

POLITICS ENDANGERS A GREAT UNIVERSITY

It is reported that Governor Ferguson of Texas has vetoed an appropriation of $1,600,000 voted by the legislature for the University of Texas for the next biennium including $197,500 for the medical department. This seriously endangers the life of the institution. According to reports, the governor sought the dismissal of the president and members of the faculty of the university. On the refusal of the board of regents to dismiss these members, the attack was turned on that board. Resignations of two members of the board were obtained, by methods not explained, and a third member was dismissed on a technicality. The places of these three regents were filled by the governor's appointees, so that the majority of the regents are evidently subservient to his wishes. A temporary injunction was obtained by the university authorities restraining the regents from dismissing the president or any members of the faculty. Also suit was started on behalf of the state of Texas to restrain one of the newly appointed regents from acting or attempting to act as a member of the board in place of the dismissed member. Being thus hindered in his efforts to have the president and faculty members discharged, the governor vetoed the university's appropriation. An opinion from the attorney-general, however, gives hope that the veto will be ineffective, since the governor vetoed only certain items, but failed to include that portion of the act which contains the totals appropriated. These procedures by the governor have thoroughly aroused the people of Texas, and mass meetings are being held at which the governor's actions are vigorously criticized. The efforts by the governor of a great state to dictate the policies of a state university are to be deplored. Political interference should not be permitted to lower the high ideals or to hamper the splendid work of the University of Texas and its medical department. State universities should be beyond the control of politicians, especially those who are willing to sacrifice the good of the institution to satisfy their own selfish interests.

RANK OF ARMY MEDICAL OFFICERS

The proposed amendment to Senate Bill 1786,[1] by Senator Owen, is of decided importance at the present time, and of personal interest to every medical man. The amendment simply provides that there shall be the same rank in the Army as in the Navy. Why medical officers in the Army should not have as high rank as similar officers in the Navy never has been explained. There is no objection to the higher grades in the Navy, but there is no reason why like grades should not be given to medical officers in the Army. In the line there is one general officer to every 170 commissioned officers; in the Medical Corps there is only one general officer, no matter how many commissioned officers there may be. The regular army when fully manned will require over 2,000 medical officers, and yet unless the present law is modified there will be only one general — and he the Surgeon-General. This is unjust — also unwise. It is unwise because preventive medicine is of such tremendous importance so far as the Army is concerned, whether in time of war or in time of peace, that every encouragement should be given to the best trained medical men to offer their services. At the present time when a young man is considering whether or not he will enter the Medical Corps of the Army as a life work he is confronted with the fact that no matter what diligence he may exercise, what skill he may possess, how faithful he may be, or how much good he may do, the highest rank he can receive, unless he should happen to be made Surgeon-General, is that of Colonel, paying but $5,000 a year. And in the ordinary course of events he would be an old man before he reached this rank.[2] That the Medical Corps is now having difficulty in filling its ranks is not to be wondered at. Heretofore it has maintained a high standard. Admission has been refused to inferior men, and those composing the Medical Corps are, therefore, of the highest personal character and professional ability. But if this high standard is to be maintained there must be better inducements for high class men than are now offered. It must not be forgotten that modern medicine has required a higher standard of medical education, and that civil practice offers greater inducements than has been the case in the past. Every other nation is

1. Page 1917, this issue.
2. According to the present law he must serve five years as lieutenant, and his promotion after that is correspondingly slow.

recognizing the fact that army medical officers should be given rank commensurate with their duties and the responsibilities they assume in carrying out the principles of preventive medicine. As we stated at the beginning, the amendment offered by Senator Owen is most important and should be adopted. It is so important that it is worth while for every physician who has any influence with his congressman or with his senator to use that influence in behalf of this amendment.

THE RESPONSIBILITY FOR THE HEALTH OF OUR TROOPS

If epidemics develop among our troops in this war similar to those which occurred during the Spanish-American war and large fatalities result, the Medical Department of the Army will be criticized; at the same time, it may be as innocent as it was in 1898. Time and again medical officers at Chickamauga and other encampments made recommendations and suggested improvements in sanitary conditions, which, if carried out, would have prevented the terrible fatalities which occurred. But the recommendations and suggestions were ignored by line officers. Now it is reported that plans for some of the great cantonments for the half-million men who soon are to be taken from our citizenship were finished without consultation with the Surgeon-General's Office. If this is true, let those responsible bear in mind that they, and not the Medical Corps, will be accountable for what may develop through neglecting to put in effect the fundamental principles of modern medicine and sanitary science in military camp construction. These cantonments can be made as sanitary as was the Isthmus of Panama during the construction of the great canal. But the same principles must be carried out in the one instance as in the other. During the construction of the canal Colonel — now Surgeon-General — Gorgas had absolute control over sanitary arrangements and conditions. So it should be in the building of these cantonments. We rejoice to note, therefore, that among the amendments to the act now before the Senate "for making further and more effectual provision for the national defense" there is one offered by Senator Owen, which reads:

> That the Surgeon-General of the United States Army shall be directly responsible to the Secretary of War for the sanitary condition of the troops, camps and hospitals of the United States, and it shall be unlawful to disregard his sanitary regulations and recommendations, except on the ground of battle or other extraordinary emergency.

Under such a provision the Medical Corps would be responsible to the Secretary of War — not to some line officer. In the summer of 1898 when 20,000 of the men who enlisted to serve their country were sick, dying or dead of typhoid fever, the cry went up that the Medical Department was a failure. Let it be repeated again and again: If the Medical Department is to bear the blame and the criticisms for illness and deaths which may occur through failure to apply modern sanitary science, then give it authority now to use its special knowledge while there is yet time to apply that knowledge.

Medical Mobilization and the War

Raising the Rank of Army Medical Corps Officers

The following was introduced, June 12, and referred to the Committee on Military Affairs:

> AMENDMENT intended to be proposed by Mr. OWEN, to the bill (S. 1786) to amend certain sections of the Act entitled "An Act for making further and more effectual provision for the national defense, and for other purposes," approved June third, nineteen hundred and sixteen, and for other purposes, viz: On page 7, after line 20, insert the following:
>
> *Provided*, That so much of the Act of Congress approved August twenty-ninth, nineteen hundred and sixteen, as provides for determining the number of officers authorized for the Medical Corps of the Navy and for the distribution of such officers in the various grades, shall hereafter apply to the Medical Corps of the Army, except that the Army titles shall be substituted for Navy titles of corresponding grades in accordance with the relative rank fixed by law between officers of the Navy and officers of the Army, to wit: One-half of one per centum to be major generals of the senior and junior grades, as fixed by the President; four per centum colonels; eight per centum lieutenant colonels; and eighty-seven and one-half per centum distributed among the lower grades, as in the Medical Corps of the Army as established by law.

This of course applies to the regular Medical Corps. When the regular army, provided for in the act of June 3, 1916, is fully manned with its 293,000 men, the Army Medical Corps will consist of about 2,000 medical officers. If the above amendment is adopted it will provide for ten brigadier-generals, eighty colonels and sixteen lieutenants. At the present time there are twenty-one colonels and thirty-six lieutenant-colonels, but no brigadier-generals in active service. (The surgeon-general is usually a brigadier-general. General Gorgas, however, was made major-general by special act of Congress in recognition of his services in connection with the Panama Canal.) The following table gives the comparative ranks, and the pay, of the Medical Corps of the army and navy:

Navy Rank	Navy Pay	Army Rank	Army Pay
Lieut. Junior Grade	$2,000	Lieutenant	$2,000
Lieutenant	2,400	Captain	2,400
Lieutenant commander	3,000	Major	3,000
Medical inspector, rank of Commander	4,500	Lieut. colonel	4,500
Medical director, rank of Captain	5,000	Colonel	5,000
Medical director, rank of rear admiral, lower half	6,000	Brigadier general	6,000
Medical director, rank of rear admiral, upper half	8,000	Major general	
Vice-admiral		Lieutenant-general	
Admiral		General	

Medical Officers with General Pershing

On the staff of General Pershing the following men represent the medical department: Col. Alfred E. Bradley, chief surgeon, is a New Yorker and has been an officer of the Medical Corps since 1888; Col. M. W. Ireland, senior assistant surgeon, is from Indiana and entered the service in 1891; Major George Peed, second assistant, is from Virginia and was commissioned in 1899; Capt. Henry Beeuwkes is junior assistant surgeon. He is from New York and has been in the army since 1909.

Fatalities Among Physicians in the British Army

The *Official Bulletin*—the government's daily newspaper—for June 16 publishes an interview with Col. T. H. Goodwin of the Royal Medical Corps of Great Britain, flatly contradicting the story that "60,000 English doctors have lost their lives in the service." The total loss, Colonel Goodwin is quoted as saying, is not 2 per cent. of that number, and that there are only 12,000 medical men in the British army.

Special Neuropsychiatric Units

The National Committee for Mental Hygiene has created a subcommittee on furnishing hospital units for nervous and mental disorders to the United States government, the project having been approved by Surgeon-General Gorgas. This subcommittee, of which Dr. Pearce Bailey, New York, is chairman, is authorized to secure the services of alienists and neurologists to be commissioned in the Medical Reserve Corps and to serve in the neuropsychiatric units which are to

be attached to the base and other hospitals of the military services of the United States. Further information will be given, and application forms sent to physicians qualified in this branch of medicine, on application by letter or in person to the National Committee for Mental Hygiene, 50 Union Square, New York City.

Enlisting with Provisos

A physician asks: 1. Can one enlist for service in the United States only? 2. Can one enlist for medical work only, not surgical? 3. Can a physician over 45 years, up to 55, enlist and be exempt from service at the field hospitals and firing line at his discretion? 4. What is the pay? 5. Is the pay the same for army and Red Cross work?

ANSWER.—1. The physician who enlists for service with the Medical Department of the Army is expected to go where he is sent, whenever he is ordered. At present only the younger men are being sent abroad. 2. The physician in the Medical Corps does whatever work he is ordered to do. The superior officers, however, are supposed to acquaint themselves with the officer's capabilities so that he will not be ordered to undertake work which he cannot do. 3. See answer 1. 4. The remuneration of medical officers is: first lieutenant, $2,000 per annum; captain, $2,400; major, $3,000 and allowances. 5. In time of war, the base hospital units formerly under the direction of the Red Cross pass into the control of the Medical Department of the Army, and the commissioned officers of these units receive pay according to the rank which they hold in the reserve corps.

Mobilizing the Medical Reserve Corps

During the week ending June 16, there were recommended to the adjutant-general of the army for commissions in the Medical Reserve Corps, 1,032 medical officers, including ten majors, 117 captains and 905 lieutenants. From April 21 to June 16, 4,026 physicians have been recommended for commissions.

Requirements for the Nurse Corps

Miss Edith M. Barrett, Thompsonville, Conn., requests information in regard to the requirements for the Nurse Corps of the Army.

ANSWER.—Candidates for the Nurse Corps must be graduates of hospital training schools for nurses and have passed a satisfactory professional and physical examination. An applicant for a first appointment must be between 25 and 35 years of age and unmarried. Application from states and territories where registration is required by law will be considered in the cases only of training schools which are acceptable to the state or territorial boards of registration. The applicant must undergo a physical examination which will be made, when practicable, by a medical officer of the army. The applicant must be not less than 60 inches nor more than 70 inches in height, and must weigh not less than 100 pounds nor more than 195 pounds. Marked disproportion between height and weight is a cause of rejection. No applicant is appointed unless she agrees to serve for three years. All nurses in the Nurse Corps are appointed or removed by the surgeon-general of the army with the approval of the secretary of war.

Qualifications Under the Draft

Dr. Herman Cohen, Bronx, N. Y., asks whether a physician can be drafted for services who (1) is 37 years old, (2) has a left inguinal hernia, an abdominal scar from a previous operation, and (3) flat feet?

ANSWER.—1. The present draft law includes only men between the ages of 21 and 31 years. 2. An inguinal hernia may be a cause for rejection. Such a defect may ordinarily readily be corrected. 3. Flat foot is a cause for rejection when accompanied by symptoms of weak feet. Simple sinking of the arch of the foot is extremely common and unless attended with symptoms of weakness, is of no consequence. The strength of the foot is tested by requiring the applicant to walk on his toes and to hop on the toes of each foot. He should be able to rise on the tip toes strongly, to hop well, and to alight on the toes after springing from the ground. Pronounced cases of flat foot, attended with marked eversion of the foot and marked bulging of the inner border due to inward rotation of the astragalus, are disqualifying regardless of the presence or absence of subjective symptoms.

Report of the National Committee on Red Cross Medical Service

The following is the report of Col. Jefferson R. Kean, M. C., U. S. Army, director-general of military relief, at the meeting in the Academy of Medicine, New York, June 7:

ARMY BASE HOSPITALS

The organization of army base hospitals has gone steadily forward, there being at this date thirty-eight organized, with three others to which a provisional authorization has been given provided the prescribed conditions can be met. In all cases the first and basic requirement—that a base hospital in order to be authorized shall have behind it a parent institution, either a great hospital or a strong medical school—has been rigidly maintained. The advantages of this requirement are each day more evident, since the staff of a hospital so organized is composed of men who are accustomed to work together and so selected with the full knowledge that the good name of the institution which they are to represent depends on the selection. The parent institution can also be depended on to replace vacancies. The effort to combine representatives of more than one hospital or school in a base hospital has been attended with failure. Great pressure has been brought to bear to authorize distinguished individuals to organize base hospitals or hospital units about themselves as the connecting bond; but such offers have been steadily declined because the cohesion and value of the organization depend in this case on a single individual, who is usually somewhat advanced in years and whose loss from ill health or other causes would be apt to cause a disruption of the organization.

The number of army base hospitals to be organized was, in March, fixed at thirty-six; but when it was determined to send six of these large units to France to assist our British Allies, it seemed advisable to replace those by additional organizations. The surgeon-general has not been anxious to increase the number of base hospitals beyond the immediate and evident prospective needs of the army, because in the organization of each twenty-four medical men, fifty nurses, and a numerous subordinate personnel are tied up whose services might otherwise be used individually.

Since the departure, in the first half of May, for the theater of war, of the six base hospitals above mentioned, four others have been placed under orders to be prepared for foreign service. In the appended list of base hospitals those that have already sailed and those under orders are indicated.

NAVY BASE HOSPITALS

Navy base hospitals to the number of five, which is as many as the Navy Department desired, have been organized at Brooklyn, Providence, Philadelphia, San Francisco and Los Angeles.

The cost of the equipment of base hospitals has greatly increased during the year since the organization of the first of them began. At that time it was fixed at $25,000 for each army base hospital, the money being furnished by the chapter in the city where the unit was organized or by private subscription. At the present time the cost of the equipment is between $40,000 and $50,000, and many articles of equipment, such as blankets and instruments, can only be secured with a promise of delivery at a more or less indefinite future date. Fortunately, however, the purchase of the equipment of many of them was sufficiently advanced at the time when the occurrence of war became probable to make it possible to meet the demands which have occurred and will probably occur in the immediate future until such time as the government shall have accumulated an adequate supply of medical equipment.

HOSPITAL UNITS

These organizations consist of twelve medical men (divided equally between surgeons and internists), twenty nurses, and such number of orderlies and other subordinate personnel as may be authorized. They are intended to supply the skilled professional personnel for camp hospitals and to reinforce the staff of other existing hospitals when necessary. Therefore no effort is made to supply them with hospital equipment, but only the instruments which may be necessary for the practice of the various specialties of the staff. The organization of these units was not undertaken until within the past three months. Eighteen of them have been organized.

AMBULANCE COMPANIES

Ambulance companies are intended for the transportation of the sick and wounded and their care en route. The organization approved by the War Department for the Red Cross has a captain, four lieutenants and eighty-six of other

ranks. Fifty ambulance companies have been organized. The number and location of these are appended. The companies are being mustered into the national service and furnished their military equipment and ambulances as rapidly as possible. It is anticipated that ten of them will be ordered to foreign service in the near future.

OTHER PROFESSIONAL PERSONNEL

During May the Red Cross was asked by the surgeon-general of the army to select for service abroad, with the British government, 112 physicians between the age of 25 and 35, and twenty-one skilled orthopedic surgeons. These, with the assistance of the members of the National Committee on Red Cross Medical Service and the state committees, were carefully selected and have already sailed.

RED CROSS NURSES

Nurses are enrolled in the Red Cross Nursing Service only after very careful investigation of their training and professional records. The enrolment is made through local committees in all the principal cities of the country. These nurses are given also a physical examination and before being ordered into active service are required to be immunized against smallpox and typhoid fever. Their standard is such as to satisfy the requirements for the army and navy nurse corps, for which they constitute the officially recognized reserve.

In addition to the nurses attached to base hospitals and hospital units, groups of ten, under a chief nurse, have been organized throughout the country, called emergency detachments. The members of these detachments are ready to respond to call within twenty-four hours and the detachments can therefore be used to meet pressing emergencies. Larger detachments called naval detachments have been organized in areas surrounding the naval base hospitals and the permanent naval hospitals at home ports, so as to permit a prompt expansion of the services of these hospitals in case of necessity.

The number of nurses called into active service since the beginning of the war has been:

Army: With base hospitals, 389; otherwise, 26	415
Navy: In hospitals	65
	480

All the nurses sent to Europe have been completely equipped with uniform and personal equipment at the expense of the American Red Cross.

STEAM YACHT SURF

The use of the steam yacht *Surf* has been given by its owner, Dr. John A. Harris, who meets all expenses for the service of the Red Cross, and has been assigned to the duty of collecting the sick from the patrol fleet within a certain area of the northeastern coast. The *Surf* was placed in commission, May 27, by Medical Inspector T. W. Richards, U. S. Navy, assistant director-general of military relief. P. A. Surg. J. B. Laughlin of the Public Health Service has been loaned by that service to take charge of the medical service.

BUREAU OF INFORMATION OF CASUALTIES

A Red Cross bureau of information of casualties has been formed, with W. R. Castle, Jr., as director. The purpose of the new bureau is to get information of casualties to the families of men wounded, missing, or taken prisoners, and to act as a means of communication, through the International Red Cross, between American prisoners in Germany and their families, and between German prisoners in America and their families. It is also to furnish lists of prisoners in America to the International Red Cross in Geneva, and to receive from it lists of Americans in German prison camps.

The central office of the bureau will be in Washington, D. C. Here will be kept card catalogues of prisoners, and of all Americans killed, wounded or missing.

The head office for Europe will be established in Paris. To this office will be sent all information collected in the field, and by it transmitted promptly to the central office in Washington. The Paris office will also receive reports from the International Red Cross in Geneva for transmission to Washington. Representatives of the bureau will be stationed in all divisional headquarters for the purpose of gathering and codifying information. These representatives will direct the work of their assistants in the field and at all the hospitals, where facts as to killed and wounded will be established and all possible information gathered which may throw light on the fate of missing men. The information so gathered will be codified and forwarded daily to the principal European office in Paris, and by this office will be sent either by letter or cable to the central office in Washington.

RED CROSS SUPPLY SERVICE

The Red Cross Supply Service has been organized as a bureau of the Department of Military Relief of the American Red Cross. Briefly the purposes of this bureau are:

1. To encourage the production and contribution of useful articles.
2. To standardize the specifications.
3. To collect, inspect, pack in suitable cases, and store these articles until needed.
4. To distribute them in the right quantity, in the right place, at the right time.

The central office of the Red Cross Supply Service is at Washington, and eleven branches with warehouses have been established at the following stations: Atlanta, Baltimore, Boston, Chicago, Denver, Minneapolis, New Orleans, New York, San Francisco, St. Louis and Seattle. These branches carry a stock of raw materials which is being sold to the chapters

AMERICAN RED CROSS ARMY BASE HOSPITALS AND DIRECTORS

No.	Parent Institution	Location	Director	Address
1	Bellevue Hospital	New York	Dr. Edw. L. Keyes	109 E. Thirty-Fourth Street
†2	Presbyterian Hospital	New York	Dr. George E. Brewer	16 E. Sixty-Fourth Street
3	Mount Sinai Hospital	New York	Dr. N. E. Brill	Mt. Sinai Hospital
†4	Lakeside Hospital	Cleveland	Dr. George W. Crile	1021 Prospect Street
†5	Harvard University	Boston	Dr. Harvey Cushing	Peter Bent Brigham Hospital
*6	Massachusetts General Hospital	Boston	Dr. F. A. Washburn	Massachusetts General Hospital
7	Boston City Hospital	Boston	Dr. J. J. Dowling	Boston City Hospital
8	New York Post-Graduate Hospital	New York	Dr. Samuel Lloyd	12 W. Fiftieth Street
9	New York Hospital	New York	Dr. C. L. Gibson	72 E. Fifty-Fourth Street
†10	Pennsylvania Hospital	Philadelphia	Dr. R. H. Harte	1503 Spruce Street
11	St. Joseph, St. Mary and Augustana Hospitals	Chicago	Dr. A. J. Ochsner	2106 Sedgwick Street
†12	Northwestern University Medical School	Chicago	Dr. F. A. Besley	104 S. Michigan Avenue
13	Presbyterian and County Hospital	Chicago	Dr. Dean D. Lewis	122 S. Michigan Avenue
14	St. Luke's and Michael Reese Hospitals	Chicago	Dr. L. L. McArthur	122 S. Michigan Avenue
*15	Roosevelt Hospital	New York	Dr. Charles H. Peck	30 W. Fiftieth Street
16	German Hospital	New York	Dr. Fred Kammerer	51 E. Sixty-Sixth Street
*17	Harper Hospital	Detroit	Dr. Angus McLean	David Whitney Building
*18	Johns Hopkins Hospital	Baltimore	Dr. John M. T. Finney	Johns Hopkins Hospital
19	Rochester General Hospital	Rochester	Dr. John M. Swan	457 Park Avenue
20	University Pennsylvania Hospital	Philadelphia	Dr. John B. Carnett	123 S. Twentieth Street
†21	Washington University Medical School	St. Louis	Dr. Fred T. Murphy	5738 Coates Avenue
22	Milwaukee County Hospital	Milwaukee	Dr. C. A. Evans	809 Evans Building
23	Buffalo General Hospital	Buffalo	Dr. Marshall Clinton	556 Franklin Street
24	Tulane University	New Orleans	Major John B. Elliott	Maison Blanche Building
25	Cincinnati General Hospital	Cincinnati	Dr. William Gillespie	670 June Street
26	State University of Minnesota	Minneapolis	Dr. Arthur A. Law	420 Syndicate Building
27	University Pittsburgh Medical School	Pittsburgh	Dr. R. T. Miller	Diamond Bank Building
28	Christian Church Hospital	Kansas City	Dr. J. F. Binnie	Rialto Building
29	City and County Hospital	Denver	Dr. Henry Sewall	Majestic Building
30	University of California	San Francisco		
31	Youngstown Hospital	Youngstown	Dr. Colin R. Clark	415 Bryson Street
32	City Hospital	Indianapolis	Dr. Edmund D. Clark	1236 N. New Jersey Street
33	Albany Hospital and Medical College	Albany	Dr. A. W. Elting	119 Washington Avenue
34	Episcopal Hospital	Philadelphia	Dr. A. P. C. Ashhurst	811 Spruce Street
35	Good Samaritan Hospital	Los Angeles	Dr. J. J. A. Van Kaathoven	Grand Avenue and Seventh Street
36	College of Medicine	Detroit	Dr. Burt R. Shurly	32 W. Adams Street
37	King's County Hospital	Brooklyn	Dr. Edwin H. Fiske	132 LaFayette Street
38	Jefferson Medical College	Philadelphia	Dr. W. M. L. Coplin	Jefferson Hospital

† Have sailed.

* Under orders to sail.

at cost. They will also carry a stock of comforts and necessities which may be drawn on by the troops in service.

We shall appoint a representative to be stationed at each of the base hospitals, training camps and other posts of the army and navy. This officer will carry a Red Cross commission and wear a uniform. In each camp a small warehouse will be erected by the army for our use and supplies will be kept therein for distribution by our field representatives.

The Red Cross Supply Service will also serve as a medium for purchasing supplies for use abroad and will attend to their transportation and distribution.

The management of the supply service consists of a director, two associate directors and an advisory board, including a transportation expert, an engineer and a doctor of public health.

RED CROSS AMBULANCE COMPANIES

No.	Location	Captain	Ready for Service
1	Pasadena, Calif.	Chas. D. Lockwood	Yes
2	Berkeley, Calif.	Alvin Powell	No
3	Chicago	Elbert Clark	Yes
4	Cleveland	Ralph K. Updegraff	Yes
5	Washington, D. C.	Ryan Devereux	Yes
6	Fordham, N. Y.	Joseph Donnelly	Yes
7	New York	Chester F. S. Whitney	Yes
8	Detroit	Charles Barton	Yes
9	Chicago	Stephen V. Balderston	Yes
10	New York	Wm. H. Rockwell	Yes
11	Battle Creek, Mich.	James T. Case	Yes
12	Seattle	David C. Hall	Yes
13	Pittsfield, Mass.	Robert J Carpenter	Yes
14	Eugene, Ore.	John E Kuykendall	No
15	Grand Rapids, Mich.	Thos. D. Gordon	No
16	Fredonia, Kan.	Edgar C. Duncan	No
17	Boston	Edward A. Cunningham	Yes
18	Indianapolis	Mason B. Light	No
19	Portland, Ore.	Ernest H. Streit	No
20	Atlanta, Ga.	Leo. P. Daly	No
21	Flint, Mich.	Walter H. Winchester	No
22	Charleston, W. Va.	Timothy L. Barber	No
23	Portland, Maine	Ernest B. Folsom	No
24	Kansas City, Mo.	Ernest W. Cavaness	No
25	Vermont	Wm. Stickney	No
26	Columbia, S. C.	Marion H. Wyman	Yes
27	Salt Lake City	Hugh B. Sprague	No
28	Detroit	Griffith A. Thomas	No
29	Atlanta, Ga.	Walpole C. Brewer	No
30	Denver	Thomas M. Hopkins	No
31	Greensboro, N. C.	Charles S. Lawrence	No
32	Greenville, S. C.	James E. Daniel	No
33	Summit, N. J.	William H. Lawrence, Jr.	No
34	Hudson County, N. J.	Frederick J. Quigley	No
35	Buffalo	Not appointed	No
36	Houston, Texas	Claude C. Cody	No
37	Minneapolis	Ralph Thomas Knight	No
38	San Antonio, Texas	Not appointed	No
39	Memphis, Mich.	George Waters	No
40	Fort Worth, Texas	Not appointed	No
41	Valparaiso, Ind.	Not appointed	No
42	Des Moines, Iowa	Not appointed	No
43	Vicksburg, Miss.	Not appointed	No
44	Topeka, Kan.	Not appointed	No
45	Raleigh, N. C.	Not appointed	No
46	Lock Haven, Pa.	Not appointed	No
47	Tulsa, Okla.	Not appointed	No
48	Oklahoma City	Not appointed	No
49	San Francisco	Not appointed	No
50	Danville, Ill.	Not appointed	No

HOSPITAL UNITS

A. PHILADELPHIA PRESBYTERIAN HOSPITAL.—Dr. John H. Jopson, 1824 Pine Street, Philadelphia.

B. YONKERS, N. Y.—Dr. S. E. Getty, 84 Ashburton Avenue, Yonkers.

C. SPOKANE, WASH.—Dr. S. E. Lambert, Old National Bank Building, Spokane.

E. RICHMOND (VA.) MEMORIAL HOSPITAL.—Dr. Robert Bryon, Grace Hospital, Richmond.

F. NEW YORK CITY, HARLEM HOSPITAL.—Dr. Lewis K. Neff, 1213 Park Avenue, New York.

G. PORTLAND, MAINE.—Dr. W. L. Cousins, 181 State Street, Portland, Maine.

H. NEW YORK CITY, FORDHAM HOSPITAL.—Dr. Alex. Nicoll, 119 W. Eighty-Eighth Street, New York.

K. COUNCIL BLUFFS, IOWA.—Dr. Donald McRae, City National Bank Building.

L. PITTSBURGH (PA.) ALLEGHENY GENERAL HOSPITAL.—Dr. B. W. Caldwell, Allegheny General Hospital, Pittsburgh.

M. FORT WAYNE (IND.) HOPE HOSPITAL.—Dr. Miles F. Porter, Physicians' Defense Building.

N. NEW YORK CITY, FLOWER HOSPITAL.—Dr. R. S. Copeland, 58 Central Park West, New York.

O. CHARLOTTE, N. C.—Dr. Addison G. Brenizer, Jr., Blandwood Apartment.

P. MEMPHIS (TENN.) GENERAL HOSPITAL.—Dr. Battle Malone, Exchange Building, Memphis, Tenn.

Q. GRAND RAPIDS (MICH.) BUTTERWORTH-BLOGETT.—Dr. Richard R. Smith, Metz Building, Grand Rapids, Mich.

R. FAIRFIELD, IOWA.—Dr. M. Fred Clarke, Fairfield, Iowa.

S. NASHVILLE (TENN.) VANDERBILT UNIVERSITY.—Dr. Richard A. Barr, Eve Building, Nashville, Tenn.

V. SYRACUSE (N. Y.) GENERAL HOSPITAL.—Dr. E. S. Van Duyn, Syracuse.

Organization of Ambulance Companies

After consultation with representatives of the French and English governments, who recently visited this country, the War Department authorized the organization of an ambulance corps for service abroad at the earliest possible date. This service is needed in the area behind the firing lines. The equipment will consist of 2,000 Ford ambulances, 100 Packard 2-ton trucks, 100 Ford ¾-ton trucks, 100 Ford touring cars and 100 motor cycles, distributed among the 100 sections into which the corps is divided.

It is proposed to organize the personnel of each section as follows: one first sergeant, one sergeant, one corporal, two orderlies, two clerks, one chief mechanic, two mechanics, one cook, one assistant cook, twenty-four motor drivers—total 36.

The corps will be constituted of members of the Medical Enlisted Reserve Corps of the United States Army and the officers will be selected from the Medical Reserve Corps. Each section of thirty-six men will be commanded by a first lieutenant, five sections will be placed under a captain, and twenty sections will be commanded by a major.

All enlistment papers read for four years, but the government has announced that enlistments made after war was declared are construed as for the period of the war only. All enlistments are made in the grade of private and promotion is made on the recommendation of the section commander.

The recently authorized schedule of pay runs from $30 for the private to $56 for the first sergeant—the usual allowances, clothing, rations, transportation and quarters, are in addition to the above.

Half the entire enlisted personnel will be supplied from colleges and universities. One or more sections are recruited at Harvard, Yale, Princeton, Amherst, Williams, Massachusetts Institute of Technology, Dartmouth, Johns Hopkins, University of Virginia, University of Pennsylvania, Washington and Lee, Oberlin, Purdue, Indiana State, University of Illinois, Northwestern University, State University of Iowa, Hamline, Leland Stanford Jr., University of California, and many others. The Stonemen's Fellowship of Philadelphia has furnished several sections, and several industrial organizations, such as the Packard Motor Company, have organized a section. While no guarantee can be given that sections so organized will always be held intact by the government, the advantages incident to maintaining such organizations are recognized, and the probability is that they will be continued.

Enlistments for this corps can be arranged for in most of the large cities of the United States. After enlistment in the Medical Enlisted Reserve Corps, recruits may be called into active service and transported to the concentration camp at Allentown, Pa., at government expense. The government bears no part of the applicant's expenses until he is called into active service.

Only men of high grade—physically and morally—are desired for this particular service.

Further information can be secured by addressing Major H. C. Coe, M. R. C., 251 West Eightieth Street, New York.

Harvard Base Hospital Unit in Action

A special cable to the New York *Tribune* reports the following interview with a wounded American officer in London regarding the service of the Harvard Medical Unit:

The medical unit was originally informed that they were to have the care of 400 beds, and a staff was selected on that basis. When they arrived in England they were informed that the hospital contained 1,000 beds, but when they reached France they discovered that there were 1,300 beds, with an expansion limit of 1,900.

After Messines the hospital was filled immediately to its utmost capacity. The American staff was only adequate to deal with a quarter of the number of cases, but they worked like supermen, only appealing to the British units for extra assistance in doctors and nurses when it had become humanly impossible to deal with all the cases coming in.

British assistance was sent as soon as it was asked, and the major commanding the unit told me it was impossible for him to express his gratitude for the loyal and enthusiastic cooperation of the British element. The Harvard unit, with the assistance of the British, dealt with all cases coming in and since then have received three or four hundred daily.

I, as an American, was simply thrilled with their work which I know has won unstinted admiration from the British army medical service. I have also heard stories of the work of Dr. Harvey Cushing. He went into the most advanced clearing station and there dealt with all the most serious cases as they came along.

Members of Medical Corps Ordered to Active Duty

ALABAMA

To FORT RILEY, KANSAS. Assigned to station, Capt. William H. Richardson, Clinton, being relieved from further station at Ft. Bayard, N. M.

To FORT SAM HOUSTON, TEXAS. To report to board for examination for promotion, Lieut. Octavius M. Spencer, Birmingham.

To ALLENTOWN, PA. For temporary duty, Lieut. Percy O. Chadron, Dothan.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C. For instructions, Drayton H. Dougherty, Selma.

ARIZONA

To FORT BENJAMIN HARRISON, IND., Roy K. Evans, Douglas.

To HOME, from Southern Department, Alva R. Hull and Adolphus A. McDaniel, Douglas.

ARKANSAS

To FORT RILEY, KANSAS, J. H. Downs, Vilonia; Braxton V. Powell, Camden; and Feast L. Proctor, Little Rock.

To ARMY AND NAVY GENERAL HOSPITAL, HOT SPRINGS, Lieut. Loyd Thompson, on completion of present duty.

CALIFORNIA

To PROPER STATION AT EXPIRATION OF LEAVE, Lieut. Herman J. Schlageter, San Francisco.

To WRIGHTSTOWN, N. Y. As camp sanitary officer, Major Frederick S. Macy, San Francisco.

To SAN FRANCISCO and report to commanding general, Western Department, for assignment to duty, John A. Dougherty, San Francisco. Major Walter C. Chidester, San Mateo; Capt. Norman E. Williamson, Stockton; and sail about July 5 for Hawaii for duty; Lieut. Robert K. Hackett, Los Angeles, for duty with Field Hospital and Ambulance Co. No. 2.

To HOME, Lieut. Elmer S. Tenney, Ft. Baker, Calif., relieved from duty at Fort Warren, Mass.

To DETROIT, Lieut. Thomas G. Holmes, San Francisco.

To FORT RILEY, KANSAS, Lieutenants Frank E. Winter and Jesse M. Burlew, Santa Ana; Harry B. Reynolds, Palo Alto; William A. Howard and John L. Pomeroy, Los Angeles.

To SACRAMENTO, CALIF., Lieut. James H. Parkinson, Sacramento.

To LETTERMAN GENERAL HOSPITAL, Presidio of San Francisco, Calif.; Lieuts. Lionel D. Prince and John G. Harrington, San Francisco.

To FORT MCDOWELL, CALIF., Capt. Ernest Dozier, Redding, Calif.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction, Lieut. Col. Edward R. Schreiner, San Francisco.

To FORT BENJAMIN HARRISON, training camp; Lieut. Jean R. Oliver, San Francisco.

COLORADO

To FORT RILEY, KANSAS, William W. Jones, Wallace C. Kent and Harold G. Garwood, Denver; Curtis Atkinson, Fort Collins; William W. Frank, Glenwood Springs; Homer C. Moses, Colorado Springs.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction: Lieut. James Redmon, Denver, Colo.

CONNECTICUT

To FORT BENJAMIN HARRISON, IND., Captain Richard Blackmore, Farmington, Conn.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction: Lieut. J. I. Wiseman, Middletown, Conn.

DELAWARE

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction: Lieut. Meredith I. Samuel, Wilmington; Lieut. Lewis Booker, New Castle, is honorably discharged from the service of the United States.

DISTRICT OF COLUMBIA

To HOME AND TO REPORT TO ADJUTANT GENERAL, Capt. Kerwin W. Kinard, Washington.

To ATLANTA, Capt. William S. Shields, Washington, and assume charge of medical supply depot.

To NEW YORK, William S. Shields, Washington.

FLORIDA

To CHARLESTON, VA., Lieut. George M. Randall, St. Petersburg.

GEORGIA

To FORT OGLETHORPE, GA., Lieut. William N. Adkins, Atlanta, is relieved from duty at Fort McPherson, and is to report to the commanding officer of the medical officers' training camp at Ft. Oglethorpe, for duty. Lieut. Madison H. Bowman, Ft. McPherson, is relieved from duty in the Southern Department and will proceed home.

Par. 34, S. O. 125, May 31, 1917, War D, as relates to Lieut. Evans B. Wood, Atlanta, is revoked.

To HOME, from Southern Department, Lieut. Stevens T. Harris, Atlanta.

Par. 61, S. O. 124, May 29, War D, as relates to Major William L. Cousins, Atlanta, is revoked.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Charles H. Harvey, Fairburn.

IDAHO

To WASHINGTON, D. C., Lieut. Frank L. Cole, Rigby.

ILLINOIS

To FORT BENJAMIN HARRISON, IND., Lieut. Russell M. Wilder, Chicago.

To FORT SNELLING, MINN., Captains Ephraim K. Findlay and Carey Culbertson, Chicago; Lieut. Charles H. Lovewell, Chicago.

To FORT RILEY, KANSAS, Lieuts. William W. Hendricks, Randolph; Jesse T. McDavid and Arthur F. Wilhelmy, Decatur; Bert I. Wyatt, August H. Lueders, Harry S. Gradle, Harry E. Mock, Horatio P. Freeman, Samuel M. Edison, Aubrey K. Brown and Charles S. Williamson, Chicago; Maurice L. Puffer, Downers Grove; William L. Hall, Greenville; Emory C. Gaffney, Lincoln; Edward K. Ellis, Murphysboro; Clarence M. Dargan, Pontiac; and Frank M. Barker, Waukegan.

To WASHINGTON, D. C., Lieut. Ross W. Griswold, Litchfield; Henry J. Ullman, Highland Park; Leon Unger, Chicago; Lieut. Royal Tharp, East St. Louis.

To HEADQUARTERS, CENTRAL DEPT., CHICAGO, Capt. Charles F. Clayton, Chicago, and Lieut. John W. Tope, Oak Park.

INDIANA

To FORT BENJAMIN HARRISON, IND.: Lieut. George G. Van Mater, Peru; Capt. George L. Guthrie, Lieut. Ernest De Wolfe Wales, B. T. Daggy, Fred E. Hickson, Floyd N. Shipp, Eddie De B. Thixtum, and Cecil L. Wayman, William F. Clevenger and Blanchard B. Pettijohn, Indianapolis; George C. Carpenter, Terre Haute; Albert W. Collins, Anderson; Harold B. Cox, Morristown; Paul Higbee, Sullivan; Earl D. Jewett, St. Paul; Valentine A. Magenheimer, Mooresville; Elmer B. Moser, Windfall; John T. Smaples, Boonsville; Henry H. Thompson and Frederick A. Tucker, Noblesville; Frederick M. Whisler, Wabash; and William H. White, Edinburg.

To HOME, from Southern Department, Lieut. Barzilla M. Hutchinson, Mishawaka.

So much of Par. 61, S. O. 124, May 29, War D, as relates to Lieut. Adrian E. Fauve, Ft. Wayne, is revoked.

IOWA

To DUBUQUE, IA., Aviation Station, Capt. Eugene R. Lewis, Dubuque.

To COM. GEN., CENTRAL DEPARTMENT, Lieut. John S. M'Atee, Council Bluffs.

To FORT RILEY, KANSAS, Harry C. Parker, Dubuque; Ora F. Parrish, Grinnell; Fred J. M'Allister, Hawardin; and William D. M'Faul, Miles.

KANSAS

To FORT RILEY, Richard C. Young, Arkansas City; Orestes L. Garlinghouse, Iola; Samuel Murdock, Jr., Sabetha; and George I. Thacher, Waterville; Capt. W. L. Wilmoth, Denison; Lieuts. H. L. Chambers, Lawrence; J. C. Lardner, Fort Scott; J. D. Riddell, Salina; H. L. Scales, Hutchinson; J. R. Scott, Newton; and Capt. William H. Richardson, Ft. Riley.

Par. 68, S. O. 124, May 29, War D., as relates to Capt. Harold P. Kuhn, Kansas City, is revoked.

To FORT BENJAMIN HARRISON, Lieut. George W. Lee, Yates Center.

KENTUCKY

To DUTY WITH AMBULANCE CO. No. 6, Lieut. Charles K. Berl, Louisville.

To HOME, Lieut. William A. Quinn, Henderson.

MAINE

To FORT OGLETHORPE, GA., Lieut. Bial F. Bradbury, National Soldiers' Home.

To FORT PREBLE, ME., Lieut. F. N. Whittier, Brunswick.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction: Lieuts. David E. Dolloff, Biddeford.

To FORT BENJAMIN HARRISON, Captain Alfred W. Haskell, Portland; Lieut. George A. Allen, Lovell.

MARYLAND

Lieut. Frederick V. Beitler, Halethorp, is honorably discharged.

To FORT MYER, VA., Lieut. Henry L. Smith, Baltimore.

To ALLENTOWN, Capt. John R. Devereux, Chevy Chase.

Par. 52, S. O. 121, May 25, 1917, War D., as relates to Lieut. Kenneth A. Phelps, Baltimore, is revoked.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Robert W. Johnson, Jr., Towson.

To FORT NIAGARA, N. Y., Capt. F. M. Chisolm, Annapolis.

Par. 34, S. O. 125, May 31, W. D., as relates to Lieut. Oscar V. Linhardt, Baltimore, is revoked.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieuts. John E. Evans, and Joseph E. Moore, John A. Etheridge, Baltimore.

To FORT RILEY, Lieut. Oscar V. Linhardt, Baltimore.

MASSACHUSETTS

To FORT H. G. WRIGHT, N. Y., Capt. Glenn I. Jones, Ayer.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Howard M. Clute, Hyman Green, Boston; William D. Reid, Newton.

Capt. Walter Clarke Howe, honorably discharged from service, Boston.

To FORT BANKS, MASS., Lieut. W. L. Tucker, Hinsdale.

So much of Par. 61, S. O. 124, May 29, as relates to Capts. W. J. Mixter, S. M. Bunker, and Lieut. G. A. Leland, Jr., Boston, is revoked.

To HOME, Lieut. Elmer S. Tenney, Ft. Warren.

To BASE HOSPITAL No. 6, BOSTON, Lieut. James H. Means, Boston.

To HOME, from Fort Logan, Lieut. Walter A. Jilsson, Westboro.

To FORT STRONG, Lieut. John W. Bartol, Boston.

To FORT WARREN, Lieut. James J. Goodwin, Clinton.

To FORT BANKS, Willys L. Tucker, Hinsdale.

To FORT BENJAMIN HARRISON, Capt. Miles D. Chisholm, Westfield; Timothy F. Goulding, John L. Mahoney, Boston; Capt. Harvey A. Kelly, Winthrop; John D. Peters, Great Barrington; Lieuts. Chester C. Beckley, Lancaster; Joseph D. Collins and William J. Collins, Northampton; Ralph W. Dennen, Waltham; John H. Kearney, Fitchberg;; Benom M. Latham, Mansfield; Charles W. Pease, Needham; Samuel D. Rumrill, and Erdix T. Smith, Jr., Springfield; Willis L. Tucker, Hinsdale.

MICHIGAN

To FORT BENJAMIN HARRISON, Lieut. Clarence E. Burt, Ithaca. Captains Frederick W. Baesleck, Carey P. M'Cord, Detroit; George

S. Foden, Highland Park; Warren P. Morrill, Benton Harbor; Gordon F. Willey, Kalamazoo; Lieut. George M. Lochner, Adrian.

To WASHINGTON, D. C., Capt. Hugh A. Freund, Lieut. Harold E. Clark, Nelson Allan Myll, Detroit; Capt. William H. Honor, Wyandotte.

To HOME, from Southern Dept., Lieut. Charles F. Smith, Whitehall.

MINNESOTA

To FORT SNELLING, Lieut. Hugh F. M'Gaughey, Winona.

To TRENTON, Mo., to examine applicants for the Officers' Reserve Corps, Lieut. James R. McVay, Rochester, Minn. After completion of this duty he will return to his home and be relieved from further active duty.

To FORT RILEY, KANSAS, Lieuts. George W. Snyder, Belleplain; John C. Sessions and Daniel M. Shewbrooks, Minneapolis; Harley G. Rickford, Minnesota Lake; Joseph O. McKeon, Mt. Gomery; Charles Bolsta, Ortonville; William H. Hengstler, Osakis; John C. Wilkinson, Red Lake Falls; Frank H. Clay, St. Charles; Walter D. Brodie and Major Paul B. Cooke, St. Paul.

To MILLARD HALL, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, Lieut. James M. Northington, Minneapolis.

MISSISSIPPI

To FORT RILEY, KANSAS, Robert M. Stephenson, Lexington.

Resignation of Lieut. Ed. L. Robertson, Belzoni, of his commission is accepted.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., James P. Wall, Jackson.

MISSOURI

To KANSAS CITY, MO., examining board, Capt. Roger B. Brewster, Kansas City.

To FORT LEAVENWORTH, KAN., to report to the commanding officer for duty, Capt. Frederick W. Shaw, Mt. Vernon.

To FORT RILEY, KAN., John W. Johnson, Hayti; Reginald H. Meade, Kansas City; William H. Breuer, St. James; Nelson J. Hawley, St. Louis; William A. Beckmeyer, Sedalia.

To ST. LOUIS, Capt. Harry S. Crossen and Lieut. Pierre I. Chandeysson, St. Louis.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Wallace A. Belsey, St. Louis; Clarence A. MacGuire, William T. Fitzsimmons, Kansas City; Lieut. Robert Vinyard, St. Louis.

MONTANA

To FORT RILEY, KAN., Robert E. Hathaway, Glendive; James H. Irwin, Great Falls.

NEBRASKA

HONORABLY DISCHARGED, Lieut. Oswald H. Margaret, Papillion.

To FORT RILEY, Theodore H. Koefoot and William R. C. Neumarker, Columbus; Henry Eugene King, Belgrade; Willis J. Redfield, Grand Island; Lieuts. Harold E. Eggers, Albert A. Fricke, Capts. Henry L. Akin, Aldis A. Johnson, George R. Gilbert, Omaha.

NEW HAMPSHIRE

To ARMY MEDICAL SCHOOL, Lieut. Benjamin P. Burpee, Manchester.

NEW JERSEY

To FORT OGLETHORPE, GA., Lieut. John L. Meeker, Newark.

To ARMY MEDICAL SCHOOL, WASHINGTON, Lieut. C. A. McGuire, Atlantic City.

To SYRACUSE, N. Y., to report to commanding general, Eastern Department, at Governor's Island, N. Y., for assignment to duty with United States troops at Syracuse, Lieut. Philip H. Finkelstein, Paterson.

To MAJOR DAVID A. KRAKER, to examine applicants, Lieut. Guerney Williams, Atlantic City.

NEW MEXICO

To BALTIMORE (JOHNS HOPKINS HOSPITAL), for duty as adjutant with Base Hospital No. 18, Capt. Thomas H. Johnson, Ft. Bayard.

To JEFFERSONVILLE, Capt. John P. Fletcher, Ft. Bayard, to establish an automobile ambulance depot in the vicinity of that place.

To WASHINGTON, Capt. John P. Fletcher, Ft. Bayard, to report to board at Washington for examination for promotion.

NEW YORK

To WEST POINT, Lieut. Kenneth A. Phelps, New York.

To HOME AND REPORT TO ADJUTANT GENERAL, Lieut. Charles B. J. Mittlestaedt, Fishers Island.

To SYRACUSE, N. Y., Lieuts. Earl H. Eaton, David Lothringer and Byron H. Hermann, New York; Louis E. Breslau, Brooklyn.

To NEW YORK, and report to Major Henry C. Coe, M. R. C., 40 East Forty-First Street, for the purpose of examining applicants for the Officers Reserve Corps: Major Graeme M. Hammond, Capts. Burton J. Lee and James H. Lawson, and Lieut. Herbert Wilcox, New York.

To ALLENTOWN, PA., Major Rolfe Floyd, Capt. Clarence A. McWilliams, Lieuts. Henry W. Cave, John E. Williams, Thomas C. Peightal and John R. Carlisle, New York.

To MINEOLA, L. I., Lieut. Everett G. Brownell, New York, and report to Major Raynal C. Bolling, aviation section Signal O. R. C.

To FORT OGLETHORPE, GA., to officers' training camp, Lieut. John R. Lecomte, New York.

To FORT RILEY, KAN., Charles B. Palmer, Plymouth.

To WASHINGTON, D. C., Lieuts. Francis F. Callahan, Castleton Corners; William H. Baughman, James N. Worcester, H. Green and H. J. Etheridge, New York; Capt. Francis J. Cahill, Hoosick Falls; Frank H. Hurst, Guilderland Center; Everett C. Jessup, Brooklyn.

To FORT BENJAMIN HARRISON, Majors Haven Emerson, Thomas W. Hastings, Capts. James B. Gere, Llewellyn E. Hetrick, Charles J. Imperatori, Robert L. Loughran, Marion B. McMillan, Albert S. Morrow, Reeve Turner, Frederick T. Van Beuren, Jr., Lieuts. Harry D. Brewster, Daniel B. Brinsmade, Meyer M. Eckert, Reuben J. Held, Bruno S. Horowicz, James W. Jameson, David M. Kaplan, Joseph E. J. King, Henry M. Larson, Maximillan L. Loeb, William A. Morgan, Rufus A. Morison, Jacob J. Steinfelder, Charles W. Strowger, Norman E. Titus, Harry H. Varner and Joseph G. Yocum, New York; Capts. Palmer H. Lyon, Valois; Willard D. Preston, Attica; Lieut. Clarence E. Mullens, James N. Vanderveer, Albany; Capt. Dayton C. Wiggin, Staten Island; Lieuts. Joseph H. Beattie, Dobbs Ferry; Carl Boettiger, Long Island City; Francis X. Brown, John B. Byrne, Harry Cleveland Harris, John J. Hauff, Benjamin E. Helprin, Howard LeRoy Norton, Brooklyn; David C. Byrne, Jr., Great Neck; John C. Hoeffler, Salamanca; Frank M. Holcombe, Keesville; Charles W. Selover, Stanley; Harrison G. Slot, Glen Cove; Joseph Sparck, Castleton Corners; Harry A. Steckel, Kings Park; Benjamin Van Campen, Olean. Lieut. Louis de Keyser Belden, New York; Lieut. James M. Flynn, Rochester.

So much Par. 61, S. O. 124, May 29, as relates to following officers, M. R. C., revoked: Lieuts. L. E. Deyoe, G. K. Rhodes, Abraham Zingher, New York.

To PLATTSBURG, N. Y., Capt. R. W. Andrews, Poughkeepsie; Lieuts. A. W. Cutler, Omeonta; T. W. Jenkins and Joseph A. Lanahan, Albany; C. W. Many, Florida; G. W. Timmers, Castleton, and Wilmarth S. Duck, Plattsburg.

So much of Par. 61, S. O. 124, May 29, War D., as relates to Major John Warren, New York, is revoked.

So much of Par. 61, S. O. 124, May 29, War D., as relates to Major Fred H. Albee, New York, is revoked.

So much of Par. 61, S. O. 124, May 29, War D., as relates to Lieut. Clarence P. Thomas, New York, is revoked.

To MADISON BARRACKS, Major John Warren, New York.

So much of Par. 61, S. O. 124, May 29, War D., as relates to Capt. Edgar A. Vander Veer, Albany, is revoked.

FROM SOUTHERN DEPARTMENT TO HOME: Lieut. Henry S. Fruitnigh, New York.

To WEST POINT, MILITARY ACADEMY, Lieut. Fredk. L. Senger, Brooklyn.

To HOME: Thomas Kenyon, New York.

NORTH CAROLINA

To WASHINTON, D. C., Capt. William P. Herbert, Asheville.

NORTH DAKOTA

To FORT RILEY, KAN., Samuel J. Hillis, Berthold; Philip G. Reedy, Regany.

To ARMY MEDICAL SCHOOL, Lieut. Olaf Kittleson, Grand Forks.

OHIO

To FORT BENJAMIN HARRISON, IND., Lieuts. De Enna Darrell DeNeen and Howard J. Ware, Cincinnati; Jay M. Harrison, Toledo; Edwin J. Kennedy, Peebles; Fred W. Lane, Cambridge; Judson Teeter, Pleasanthill.

To FORT SNELLING, MINN., Lieut. Horatio Z. Silver, Eaton.

To CLEVELAND, to report to Major Paul S. Bond, Corps of Engineers, for duty in connection with the securing enlistments for the nine regiments of engineers for the Engineer Officers Reserve Corps, Lieuts. Robert W. Williams and Charles D. Treister, Cleveland.

To HOME, Lieut. W. A. Quinn, Portsmouth.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. A. Strauss, Cleveland.

To FORT BENJAMIN HARRISON, IND., to training camp, Benjamin C. Barnard, Alliance; Roy A. Wilson, Dennison; Herbert W. Bennett, Lisbon.

OKLAHOMA

To ATLANTA, as sanitary officer, Capt. Clarence E. Fronk, Ft. Sill. Par. 68, S. O. 121, May 25, 1917, War D., as relates to Lieut. Abraham L. Blesh, Oklahoma City, is revoked.

OREGON

To SAN FRANCISCO, and report to commanding general, Western Department, for assignment to duty: Capts. Walter C. Belt, Gresham; Jesse P. Truax, Grants Pass; Ernest C. Dalton and Calvin S. White, Portland; George E. Darrow, Eugene.

To HOME, from Southern Department, Lieut. Leonard P. Bell, Ft. Stevens.

To FORT BENJAMIN HARRISON, Capt. Charles C. Osborn, Portland.

PENNSYLVANIA

To ALLENTOWN, PA., Medical Corps, Capt. Ward Brinton, Philadelphia.

To OFFICE OF SURGEON-GENERAL, WASHINGTON, Major Bert W. Caldwell, Pittsburgh.

To ARMY MEDICAL SCHOOL, WASHINGTON, Donald W. Cameron, George R. Harris, Jr., Lieut. Thomas P. Edmundson, Pittsburgh; Joseph G. Fernbach, William J. Martin, Abraham Strauss and C. H. Harvey, Philadelphia; John P. McComb, Bellevue; Philip J. Sheridan, Oil City.

So much of Par. 61, S. O. 124, May 29, as relates to Lieut. T. M. Armstrong, Philadelphia, is revoked.

To FORT BENJAMIN HARRISON, Major James F. Edwards, Pittsburgh; John H. G. Gallagher, Connellsville.

To FORT OGLETHORPE, GA., Lieut. David G. Harvey, Huntingdon Valley.

Par. 61, S. O. 124, May 29, War D., as relates to Lieuts. Frank C. Knowles and Thomas G. Miller, Philadelphia, is revoked.

To PHILADELPHIA, Lieut. George P. Pilling, Jr., Philadelphia.

Par. 52, S. O. 121, May 25, War D., as relates to Lieut. Walter E. Lee, Philadelphia, is revoked.

Par. 52, S. O. 121, May 25, War D., as relates to Lieut. John A. McKenna, Lansdowne, is revoked.

To HOME, from Fort Dade, Fla., Lieut. Reuben L. Robertson, Charlottesville.

Par. 61, S. O. 164, May 29, War D., as relates to Capt. James P. Austin, Philadelphia, is revoked.

Par. 61, S. O. 124, May 29, War D., as relates to Capt. Charles M. Montgomery and William D. Stroud, Philadelphia, is revoked.

Par. 52, S. O. 121, May 25, 1917, War D., as relates to Lieut. Donald Guthrie, Sayre, is revoked.

So much of Par. 61, S. O. 124, May 29, War D., as relates to Capt. Ward Brinton, Philadelphia, and Edward J. Gordon, Wyncote, is revoked.

RHODE ISLAND

To FORT BENJAMIN HARRISON, IND., Lieut. George W. Gardner, Providence.

SOUTH CAROLINA

To ALLENTOWN, PA., Medical Corps, Lieut. Marion H. Wyman, Columbia.

SOUTH DAKOTA

To FORT OMAHA, NEB., Capt. James A. Mattison, Hot Springs.

TENNESSEE

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. John W. Merris, Somerville.

To FORT OGLETHORPE, GA., Lieut. Howard L. Walker, Memphis.

TEXAS

To ARMY MEDICAL SCHOOL, WASHINGTON, Capt. Ernest W. Bertner, Houston; Lieut. Eugene V. Powell, Ft. Worth. Lieutenants William H. Lloyd, El Paso, is relieved from duty in the Southern Department and will proceed home.

So much of S. O. 123, May 28, War D., as relates to Major Charles C. Billingslea, M. C., Del Rio, is revoked.

Sick leave for four months to Major William P. Banta, Eagle Pass.

To FORT SAM HOUSTON, TEX., Capt. Frederick C. A. Kellam, Jr., Ft. Clark, to report to board for examination for promotion.

Leave for one month granted to Lieut. Joseph C. Breitling, San Antonio, about June 1.

To REPORT TO COMMANDING GENERAL, SOUTHERN DEPARTMENT, Lieut. James A. Simpson, Mission.

To PHILADELPHIA, Major John B. Huggins, Harlingen.

UTAH

To SAN FRANCISCO, and report to commanding general, Western Department, for assignment to duty, Capt. Thomas A. Flood, Salt Lake City.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Howard T. Wickert, Huntsville.

VERMONT

Capt. Herbert W. Taylor, Brattleboro, honorably discharged from the service.

To FORT WILLIAMS, ME., Lieut. Henry R. Weston, Windsor.

To FORT OGLETHORPE, GA., for instruction, Lieut. Henry R. Weston, Windsor.

VIRGINIA

To FORT SNELLING, duty with 36th Inf., Capt. Roderick W. Browne, Norfolk.

To RICHMOND, Major Alfred L. Gray, Richmond.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction, Lieut. J. L. Hamner, Richmond.

Major William L. Little, Fortress Monroe, in addition to other duties, assigned as medical superintendent, Army Transport Service, Newport News.

To FORT MONROE, Lieuts. George E. Barksdale and Blanton Hillsman, Richmond.

To WASHINGTON BARRACKS, Capt. Wilbur M. Phelps, Stanton.

To ALLENTOWN, PA., Lieut. Edwin S. Potter, Montpelier.

WASHINGTON

To SAN FRANCISCO, and report to commanding general, Western Department, for assignment to duty, Capt. Everett O. Jones, Seattle; Lieut. Richard C. Hill, Irondale.

To BALTIMORE (JOHNS HOPKINS HOSPITAL), Major James D. Heysinger, Ft. Casey, for duty in command of Base Hospital No. 18.

To VANCOUVER BARRACKS, WASH., Lieuts. Pearl C. West, Seattle, and Isaac Sidwell Collins, Spokane.

WEST VIRGINIA

Resignation of Lieut. Irvin Hardy, Morgantown, accepted.

To FORT OGLETHORPE, GA., Lieut. William H. McLain, Wheeling.

WISCONSIN

To FORT RILEY, KANSAS, John M. Conley, Oshkosh; Frank R. Borden, Plainfield; and William W. Pretts, Plattsville.

To FORT LOGAN, Lieut. William C. Bennett, Rhinelander.

So much of Par. 43, S. O. 124, May 29, War D., as relates to Capt. Harry Greenberg, Milwaukee, is revoked.

CANAL ZONE

To WASHINGTON, D. C., ARMY MEDICAL SCHOOL, for instruction, Lieut. Deane C. Howard, Balboa Heights.

So much of S. O. 123, May 28, War D., as relates to Capt. James E. Baylis, Empire, is revoked.

Par. 51, S. O. 121, May 25, War D., as relates to Lieut. William C. Gibson, Pedro Miguel, is revoked.

FROM SOUTHERN DEPARTMENT TO HOME, Lieut. James C. Burdett, Ancon.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Physicians Organize to Serve in the War.—A meeting of the medical section of the State Committee of National Defense for the State of Alabama was held in the Senate Chamber of the State Capitol at Montgomery, June 14. There were over 200 physicians in attendance. Practically every county in the state was represented. In opening the meeting Dr. J. N. Baker, Montgomery, the chairman of the committee, stated that the registration returns of the state show there are 236 physicians in the state who are between the ages of 21 and 31 years. These younger men as well as those who are between 31 and 55 years of age were urged to offer their services to the government. Every member of the medical profession was urged to appreciate and respond to this privilege and obligation to serve in the present emergency.

ARIZONA

Protecting the Practice of the Absent Physician.—The Santa Crus County (Ariz.) Medical Society has pledged itself to conserve the practices of its members who are called into military service.

ARKANSAS

Arkansas Physicians and the War.—Baxter County (Ark.) Medical Society will care for the practice of its members who respond to the call to the colors. All the members of the society have expressed a willingness to do what they can.——Five of the twenty-five members of the Phillips County (Ark.) Medical Society have volunteered their services and will report at once for examination for commissions in the M. R. C.

CALIFORNIA

New University Hospital.—The new Stanford University Hospital, which is being erected at a cost of approximately $500,000, will, it is expected, be ready for occupancy about October 1.

Personal.—Dr. Harry J. Pittock, Sacramento, has been appointed assistant physician at the Nebraska State Hospital, Ingleside.——Dr. Margaret Smyth has succeeded the late Dr. J. D. Young as first assistant physician at the Stockton State Hospital.——Dr. Louis Lee Seabright is reported to be critically ill in the Harbor Emergency Hospital, San Francisco, the result of a cerebral hemorrhage.

CONNECTICUT

Protecting the Practice of the Absent Physician.—The Windham County (Conn.) Medical Society has endorsed the Maryland plan for safeguarding the practices of members called into military service.

State Medical Society Meeting.—The one hundred and twenty-fifth annual meeting of the Connecticut State Medical Society was held in New Haven, May 23 and 24, under the presidency of Dr. Samuel M. Garlick, Bridgeport, and the following officers were elected: president, Dr. Edward K. Root, Hartford; vice presidents, Drs. Patrick Cassidy, Norwich, and Charles C. Godfrey, Bridgeport; secretary, Dr. John E. Lane, New Haven, and treasurer, Dr. Phineas H. Ingalls, Hartford.

Personal.—Dr. William C. Sandy, formerly medical instructor of the State Hospital for the Insane, Columbia, S. C., has assumed his duties as assistant superintendent of the Connecticut Hospital for the Insane at Middletown, succeeding Dr. William E. Fisher, resigned.——Dr. Thomas F. Erdman has been appointed superintendent of the Norwich State Hospital for the Insane, succeeding Dr. Henry M. Pollock, who has accepted the superintendency of the Massachusetts Homeopathic Hospital at Boston.

State Health Evolution.—Connecticut, like Maine, has joined the group of progressive states which have abandoned the plan of a state board of health in favor of a single commissioner. A new law passed this spring gives reasonably effective powers over the local health officer to the state commissioner of health, and provides a public health council

with authority to formulate a state-wide sanitary code, following in its main essentials the New York and Massachusetts plan.

Reorganization of New Haven Health Department.—The Public Health Department of Yale University, under the direction of Prof. Charles E. A. Winslow, has completed an exhaustive survey of health conditions in the city of New Haven on the basis of which a comprehensive plan for the reorganization of the department in bureaus, with the expansion of the activities of the department along the modern lines of infant welfare and tuberculosis work. The contemplated plan, which has been accepted by the board of health and has the backing of many leading citizens, involves an increase of the per capita expenditure for health work from 28 cents to about 45 cents.

Amendments to Pauper and Insane Law.—The last general assembly enacted certain amendments to the law concerning the commitment of pauper and indigent insane, which will improve conditions. After October 1, all sums for the support of pauper and indigent insane will be collected by the state, whether derived from friends and relatives of patients or from towns. The state will then forward a check to the state hospital treasurer for the total amount of their monthly expenses. This will remove from hospitals the burden of acting as collecting agencies and will enable the state, with its more efficient collection machinery, to investigate the financial status of the patients committed to public institutions, and to secure an adequate recompense. ——Other amendments are provisions whereby trained attendants and nurses may be sent to bring patients to the hospitals; the provision for uniform commitment blanks regardless of the authority by which patients may be committed, and the provision for both emergency and voluntary admissions under more flexible conditions than was formerly the case, as the former restrictions were such as to render such admissions very infrequent.

ILLINOIS

Illinois Physicians in the War.—The Madison County (Ill.) Medical Society reports that twenty-five physicians and nine dentists from that county have applied for commissions in the reserve corp of the army.

Smallpox in Chicago Heights.—During the last two weeks more than twenty cases of smallpox have occurred in Chicago Heights. Fifteen of the cases were in negroes. About 8,000 persons have been vaccinated. The patients are being cared for in the Chicago Hospital for Contagious Diseases, and in the Chicago Heights Isolation Hospital.

Bills Passed Which Interest Physicians.—Senate Bill No. 135 enacted by the last legislature provides for the license of persons practicing chiropody; House Bill No. 813 gives the health department the authority to abate any nuisance about the military camp. House Bill No. 657 revises the medical practice act, and provides that all who practice the art of healing shall take an examination and obtain a license. This includes osteopathy.

Personal.—Major Mathew A. Reasoner, M. C., U. S. Army, has been relieved from duty at the Army Medical School, Washington, D. C., and ordered to Chicago to establish a medical supply depot for the central department. The building for the depot has been leased at 3920 Federal Street.——Dr. Sadie Bay Adair, Chicago, has been appointed a member of the board of school trustees.——Lieut. J. G. Maxon, M. C., U. S. R., Harvard, was given a farewell reception in Harvard, May 26. Dr. Maxon sailed for his new post of duty in Hawaii, June 5.

Chicago

Chicago Medical Society Elects.—At the annual election of the Chicago Medical Society, the following were elected: president-elect, William A. Pusey; secretary, J. V. Fowler; councilors at large, John S. Nagel, Joseph L. Miller, Samuel C. Plummer, J. H. Walsh and Otto T. Freer; alternate councilors at large, W. T. Mefford, Henry G. Lampe, Fred G. Harris, Howard C. Ballenger and George Apfelbach.

Chicago Surgeons Elect Officers.—At the annual meeting of the Chicago Surgical Society, June 15, an address was made by Col. T. H. Goodwin, surgeon-general, R. A. M. C., and the following officers were elected: president, Dr. Carl Beck; vice president, Dr. Coleman G. Buford, and secretary-treasurer, Dr. Kellogg Speed.

Rush Alumni Elect Officers.—At the last annual meeting of the Rush Medical College Alumni Association, the following officers were elected: president, Dr. Oliver S. Ormsby, Chicago; secretary, Dr. Charles A. Parker, Chicago; treasurer, Dr. Elmer L. Kenyon, Chicago; directors, Drs. Asher Sippy and W. N. Duncan, Chicago.

Health Experts Organize.—The Chicago Health Association was organized, June 14. The meeting was called by Commissioner Robertson. Dr. Arthur I. Kendall was elected president, and a committee of thirty members, including workers in practically every subject which interests the uplift organization, was appointed. Among the members of this committee were Dr. William E. Quine, A. Augustus O'Neill and Charles P. Caldwell.

IOWA

Iowa Physicians in the War.—Council Bluffs reports that seventeen out of forty physicians have offered their services to the Medical Reserve Corps. Eighty physicians from the ninth and eleventh districts of Iowa have applied for appointments in the Medical Reserve Corps.

MARYLAND

Second Hospital Unit at St. Joseph's.—In addition to the hospital unit already organized at the St. Joseph's Hospital, under the direction of Drs. Yaeger and Frank Martin, another unit is being formed under the direction of Dr. Archibald C. Harrison of the hospital staff.

Personal.—Dr. David I. Macht, for some time assistant in medicine at the Johns Hopkins Hospital, has been appointed lecturer in pharmacology at the university.——Dr. Anna D. S. Abercrombie, president of the Maryland Women's War Relief Hospital, has announced that Ex-Gov. Edwin Warfield has turned over his country estate in Howard County, near Ellicott City, as a rest home and recuperating center for nurses returning from the battle fronts in Europe.

Commencements.—The Johns Hopkins University held its forty-first annual commencement on June 12, when diplomas were awarded to 224 graduates, eighty of whom were in the medical school. Many of the graduates are already in active military service and were unable to receive their diplomas in person. Secretary of war, Newton D. Baker, of the class of 1892, delivered the principal address.——The annual commencement of the Nurses' Training School at the Sheppard and Enoch Pratt Hospital, Dr. Edward N. Brush, superintendent, was held on June 13 at the hospital. Dr. Lewellys F. Barker addressed the graduates and Dr. Charles H. Riley of the board of trustees awarded the diplomas.——The annual commencement of the Nurses' Training School of the Eastern Shore State Hospital, Dr. Charles J. Carey, superintendent, was held at the hospital in Cambridge, June 13. There were three graduates from this new training school.

Care of Tuberculous.—A war measure of unusual importance is that of the proper care and treatment of tuberculous patients among the soldiers who have volunteered and will enlist in the various branches of national service. A committee of the Maryland Tuberculosis Association, consisting of Drs. Henry Barton Jacobs, C. Hampson Jones and J. Hall Pleasants and Mr. W. Wirt Steele has proposed to the general assembly several recommendations, one of the most important of which is that a special hospital for negro consumptives be created in connection with one of the existing institutions or as a separate unit, provided that for the period of the war, it be used exclusively for the care of invalided white soldiers and sailors by arrangement with the War and Navy Departments if the emergency should require. It is their plan that all the state's tuberculosis institutions be correlated, coordinated and controlled under a state tuberculosis commission which should be established by the legislature now in extraordinary session.

War Conference on Medical and Hospital Preparation.—A conference on medical and hospital preparation for returned soldiers was held in Baltimore, June 13, under the auspices of the Maryland Psychiatric Base Hospital Unit, Maryland Association for the Prevention and Relief of Tuberculosis, Maryland Women's War Relief Hospital, Maryland Red Cross Association, and Alliance of Social and Charitable Agencies. Mr. E. H. Scammell, executive secretary of the Military Hospitals Commissions of Canada, Ottawa, was the principal speaker; Dr. Thomas S. Cullen presided. Mr. Scammell has had charge of placing crippled and convalescent men in the various hospitals throughout Canada. All that has been done heretofore has been to pension the soldier and allow him to return to his home, usually a mental and physical wreck. The experience of Canada in this war will point the way to state and government agencies in this country in devising methods of taking care of our soldiers on their return. Canada has provided for over 25,000 crippled and canvales-

cent soldiers in various private and provincial hospitals. The vocational training of these injured men has developed in Canada to such an extent that practically every crippled soldier is now taught some occupation that will make him more or less self-supporting, so that his strength and earning capacity will be restored to the highest degree possible.

NEBRASKA

Medical Building Assured.—At the recent session of the Nebraska legislature $350,000 was appropriated for the College of Medicine of the University of Nebraska for the next biennium. This includes money sufficient to erect another laboratory building, which will be an exact duplicate of the building now occupied.

Hospital Completed.—The University Hospital, the teaching hospital of the University of Nebraska College of Medicine, has been completed, is being equipped and will open about Aug. 1, 1917. The total cost of the building and equipment will be approximately $210,000.——The Blair Hospital after complete renovation and redecoration was reopened, May 16.

Personal.—Dr. Harry J. Pittock, Towle, Calif., has been appointed assistant physician at the Hastings State Hospital. ——Dr. Warren M. Phillips, Bartley, has been appointed second assistant physician at the Norfolk Hospital.——Dr. Carl Oliver Reed, Carter, S. D.; Roy D. Bryson, Callaway, and Earl B. Erskine, Wayne, have been commissioned first lieutenants, M. C., Neb. N. G.——Dr. Leverett D. Bristol, Boston, has been appointed state health officer.——Dr. William F. Wild, Lincoln, state bacteriologist, has been appointed state epidemiologist.——Dr. Wilford H. Crutcher, assistant superintendent of the Ingleside State Hospital, has been appointed superintendent of the Orthopedic Hospital, Lincoln, which has been combined with the Home for Dependent Children.

NEW YORK

Former Surgeon-General Leases Property.—Dr. Charles Francis Stokes, Warwick, formerly surgeon-general of the United States Navy, has leased Onteora Villa at Chappaqua, for a long term of years.

Letchworth Tablet Unveiled.—The ninety-fourth anniversary of the birth of William Pryor Letchworth was celebrated at Letchworth Park, Warsaw, May 26, when the Boulder tablet was unveiled.

Tuberculosis Hospital Bill Signed.—Governor Whitman has signed a bill, passed at the recent session of the legislature which provides that every county in the state which has not now a tuberculosis hospital, must establish one before July, 1918.

Buffalo Alumni Elect New Officers.—At the annual meeting of the Alumni Association of the University of Buffalo, June 1, the following officers were elected: president, Dr. William G. Bissel, Buffalo; vice president, Drs. Jacob Frank, Chicago; George E. Blackham, Dunkirk, N. Y.; Homer J. Knickerbocker, Geneva, N. Y.; Edith R. Hatch, Buffalo, and John A. Conway, Hornell, N. Y.; secretary, Dr. Abraham H. Aaron, Buffalo; treasurer, Dr. James C. Sullivan, Buffalo.

Personal.—Dr. Frank Overton, Patchogue, had conferred on him a degree of Doctor of Public Health by the New York University, June 9.——Dr. Charles W. Farr, Ossining, is reported to be improving after a serious attack of septicemia due to an operation wound.——Dr. Edward J. Meyer, Buffalo, has been appointed chairman of the West Farms Hospital Commission for a term of five years.——Dr. Charles W. Pilgrim, Poughkeepsie, has declined to accept the appointment as medical superintendent of the Manhattan State Hospital, succeeding the late Dr. William Mabon, but will continue as president of the State Hospital Commission.——Drs. Montgomery E. Leary and John M. Lee have been elected directors of the Rochester Public Health Association.

New York City

Orphanage Open.—The Israel Orphan Asylum was formally opened by Mr. Nathan Straus June 10.

Straus Milk Stands Open.—The summer work of the Nathan Straus Pasteurized Milk Commission began June 16 with the opening of depots at the parks, where pasteurized milk was sold at one cent a glass. This is the twenty-fifth summer in which this philanthropic work of Mr. Straus has been carried on.

Hospitals Enlarged.—The Broad Street Hospital has increased its facilities by the purchase of a five-story building adjoining the present hospital building.——The Jewish Maternity Hospital is to be extended from East Broadway to Division Street, the trustees having purchased the property in the rear of the institution.

Glanders in New York City.—The supervision of stables by the Department of Health has made possible a more effective control of glanders, which decreased from 1,153 cases in 1914, to 704 in 1915, and to 399 in 1916. There are under supervision 10,584 stables in the city accommodating 108,036 horses, and 1,266 vacant stables with stalls for 6,842 horses.

Personal.—Dr. J. Ramsay Hunt has been appointed consulting neurologist to the Letchworth Village for Mental Defectives in New York State at Thiells, N. Y.——Dr. Thomas Addis Emmet, now past 90 years of age, was given the honorary degree of LL.D. by the Catholic University, Washington, D. C., May 29.——The degree of LL.D. was conferred on Dr. Carlos Frederick MacDonald by the New York University at the recent eighty-fifth annual commencement.

NORTH DAKOTA

Hospital News.—The Nurses Home of the Bismarck Evangelical Hospital, recently erected at the cost of $70,000, was formerly dedicated June 6.——The contract for the construction of St. Joseph's Hospital, Mino, has been awarded to a Fargo firm. The building completed will cost about $100,000.

Personal.—Dr. Arnt Thomas Floew has been appointed surgeon at Harvey for the Minneapolis, St. Paul, and Sault Sainte Marie Railway.——Dr. Eric P. Quain, chief surgeon of the Bismarck German Evangelical Hospital is equipping at the cost of $10,000, a section of the National Red Cross, the other medical members of the staff are Drs. Eric P. Quain, Julius O. Arnson and Frederick F. Griebenow, Bismarck, and Dr. Aloysius Nachtwey, Dickinson.

PENNSYLVANIA

Charter Asked for Hospital.—Application was made in Scranton, June 8, for a charter for the Emergency Hospital, formerly the Dr. Reed Burns Private Hospital.

Birth Control Bill Passed.—A bill forbidding the promulgation of birth control doctrines has passed the House of Representatives by a vote of 188 to 3.

Doctors for the Army.—As a result of a visit to Chester by a group of army surgeons, eight members of the Delaware County Medical Society have volunteered for service in the U. S. Medical Corps. The recruits are Drs. W. Knowles Evans, Chester; Edwin C. Bullock, Upland; Harry Gallager, Glen Olden; John O. Crist, Carrisburg; Louis S. Dunn, Chester, Thomas A. Booth, Boothwyn; Walter A. Landry, Chester, and Michael Freeman, Philadelphia. Nine members of the Chester Hospital staff are now enrolled, six having enrolled last month.

Personal.—Drs. W. W. Workman, Mt. Joy, and John D. Boger and Grant B. Weaver, Lancaster, have been commissioned First Lieutenants M. C. Pa., M. G., and assigned to duty with Field Hospital No. 3.——Dr. Leo C. Mundy, Wilkes-Barre, has been appointed division surgeon for the Delaware and Hudson Railroad Company, succeeding Dr. David H. Lake, Kingston, resigned.——Dr. C. J. Watson has been commissioned First Lieutenant M. C. N. G., Pa., and assigned to Field Hospital No. 2.——Dr. Virginia Percira Alvaraz, of Venezuela, was awarded the only prize in anatomy given by the Woman's Medical College at its commencement exercises, June 6.

Philadelphia

Dr. Marshall Retires.—Dr. Clara Marshall has retired as dean of the Woman's Medical College of Pennsylvania, after twenty-nine years of service. Dr. Martha Tracy, Philadelphia, professor of physiological chemistry and hygiene, has been appointed as acting dean.

Second Line of Medical Reserve.—Physicians of Philadelphia more than 55 years of age and consequently past the age for military services have organized under the auspices of the Philadelphia County Medical Society and will offer their services to the government for activities within their abilities, such as the examination of recruits for the army, the care of the injured, sick, disabled and convalescents, the care of defectives, the giving of lectures and demonstrations, and the like.

Personals.—Dr. Peter F. Moylan has been appointed a Knight of the Order of St. Gregory the Great, by the Pope in recognition of his services for Catholic hospital and other charities.——Dr. Wilmer Krusen, director of public health

and charities, addressed the class-day exercises of the Samaritan Hospital Training School for Nurses, June 14. ——Dr. Moses Behrend has been appointed surgeon to the Mt. Sinai Hospital.——Dr. Arthur J. Davidson has been made assistant professor of orthopedic surgery in Jefferson Medical College.

Medico-Chirurgical Buildings for Naval Hospital.—Negotiations are now under way by which the present buildings of the Medico-Chirurgical College and Hospital will pass under the management of the Red Cross and will be organized and maintained as a naval hospital. The city will allow the buildings to remain in their present location, and the hospital will be maintained for the duration of the war. The hospital will have capacity for about 250 patients, and Logan Square will be utilized largely for recuperation of convalescents.

Branch Naval Medical College.—Owing to the present overcrowded condition of the Naval Medical School at Washington, a branch has been organized and is now being conducted in this city. A six-weeks' intensive course in instruction has been arranged and will be given at the Jefferson, Naval, Medico-Chirurgical and Philadelphia hospitals. A group of forty physicians is now here for study, and more will be received as fast as arrangements can be completed. The staff of instructors comprises the following Philadelphia physicians: Surgery, J. C. Da Costa; operative surgery on the cadaver, M. B. Miller; medical and physical diagnosis, Judson Daland; laboratory, H. A. Hare; psychiatry, W. W. Hawke; ophthalmology, T. B. Holloway. Associates, A. C. Morgan, Guy Hinsdale, F. J. Dever, Wm. H. Robertson, Clarence N. Smith. Advisory staff, Dr. Diehl, medical director; Dr. Dunn, lieut. commander Naval Hospital; Dr. R. A. Bachman, military hygiene and tropical medicine.

SOUTH DAKOTA

Personal.—Dr. Harry J. Bartron, Watertown, has been appointed physician of Codington County.

Chiropractic Bill Defeated.—The South Dakota chiropractic bill was defeated by one vote in the last legislature. The chiropractors spent a great deal of time and money trying to lobby the bill through.

Ladies Day.—The meeting of the Lake Preston (third) District Medical Society held its June meeting at Lake Preston, June 6, and was ladies day. Mrs. Allison and Mrs. Bailey entertained the ladies during the afternoon, while the scientific program was being carried out at the offices of Dr. Nathan L. Bailey.

State Society Meeting.—The thirty-sixth annual meeting of the South Dakota State Medical Society was held in Yankton, May 20 to 30, under the presidency of Dr. Francis M. Crain, Redfield, and the following officers were elected: president, Dr. Herman J. G. Koobs, Scotland; vice presidents, Drs. Daniel L. Scanlan, Volga, and Harry T. Kenney, Pierre; secretary-treasurer, Robert D. Alway, Aberdeen (reelected). Mitchell was selected as the place of meeting for 1918.

Society will Render Patriotic Aid.—At a meeting of the Mitchell District Medical Society, May 15, the society pledged itself to care for and keep the families of the physicians who volunteer for war duty during the period of the war. This will be met by a popular subscription payable each month and will be disbursed by a committee of five men in the society. The resolution carried unanimously and is certainly a very patriotic and self-sacrificing act on the part of the society.

TEXAS

Roentgenologists Hold Meeting.—The Texas Roentgen-Ray Society held its fourth annual session in Dallas, May 7, and elected the following officers: president, Dr. Rabun T. Wilson, Temple; vice president, Dr. Robert H. Millwee, Dallas; secretary-treasurer, Dr. John W. Torbtt, Marlin (re-elected).

Former Presidents Elect.—The annual meeting of the Association of Former Presidents of the State Medical Society of Texas was held in Dallas, May 9, and the following officers were elected: president, Dr. Bacon Saunders, Ft. Worth; vice president, Dr. Samuel C. Red, Houston; secretary, Dr. James D. Osborn, Cleburne.

Railway Surgeons Re-elect Officers.—At the first annual meeting of the Texas Railway Surgeons Association, held in Dallas, May 7, the following officers were re-elected: president, Dr. Robert W. Knox, Houston; first vice president, Dr. Joseph H. Reuss, Cuero; secretary, Dr. Douglas Largen, San Antonio. Three new offices were created, and these were filled as follows: second vice president, Dr. Hugh D. Barnes, Childress; third vice president, Dr. Edmund B. Parsons, Palestine; treasurer, Dr. W. Burton Thornting, Houston.

Health Survey in Dallas County.—The Dallas County Commissioners have accepted the offer of the International Health Board and the Texas Board of Health to be one of five counties for a health demonstration, beginning June 19. They have appropriated $2,400 to meet a portion of the expense for Dallas County. The plan includes lectures in rural communities, a record of sickness from preventable diseases with time lost from work and expense for medicine and physicians' bills, the examination of sanitary conditions, hookworm, intestinal parasites and malaria, and the examination of children of school age for physical defects.

CANADA

Council Meeting.—The annual meeting of the New Brunswick Council of Physicians and Surgeons was held in April, and the following officers were elected: president, Dr. Levi M. Curren; treasurer, Dr. Allan F. Emery, and registrar, Dr. John S. Bentley, all of St. John.

Staff Moved to Camp.—The army medical authorities, Canada, are moving the staff of the Hamilton (Ont.) Hospital to Camp Borden, where they will be under the command of Capt. William L. C. MacBeth, Toronto. Accommodation for 400 additional beds is being provided at the camp.

New Details.—The appointment of the following officers to the Army Medical Corps Training Depot No. 2 has been approved provisionally: to be captain, Lieut. Alfred E. Morgan; to be lieutenants, Frank Roy Smith, Harold John Irvine, Nicholson William Furey, Charles R. McTavish and Charles Vincent Scott.

Hospital News.—The Holy Cross Hospital at Calgary, Alberta, is to be enlarged.——A new hospital is to be opened at Fort McMurray, Alberta.——The Canadian Military Hospitals Commission will build an amusement hall for returned soldiers on the grounds of the Ontario Hospital for the Insane at Whitby, Ontario.

Convocation.—The annual convocation of McGill University, Montreal, took place May 11, when the degree of M.D., C.M. was conferred on a class of sixteen. All the candidates had already seen military service abroad, and returned to Canada to complete their studies.——The annual convocation of Dalhousie University, Halifax, N. S., was held, May 10. Seven candidates received the degree of M.D., C.M. Several of them will join the C. A. M. C.

Personal.—Major D. A. Clark, Toronto, is now A.D.M.S., Bramshott, England.——Col. A. E. Ross, M.D., M.P.P., Kingston, Ontario, is director of medical services for Canadian Overseas forces in France.——Dr. M. F. E. Graham, assistant physician at the Brockville, Ontario, Hospital for the Insane, has been appointed resident physician of the Royal Jubilee Hospital, Victoria, B. C.——The French War Office has decorated for conspicuous bravery the following members of the C. A. M. C.: Lieut.-Col. Arthur Mignault, Montreal (Croix de Chevalier); Capt. Arthur Chester Armstrong, Alexander, Man. (Croix de Guerre).——Capt. G. Russell Reid, Toronto, has been appointed medical officer of the 253rd Battalion. —— Amongst Canadian physicians reported recently wounded are: Col. J. J. Fraser, Walkerton, Ont.; Capt. A. H. Wallace, Chilliwack, B. C.; Lieut. R. S. Stone, Chatham, Ont.

GENERAL

Otologists Elect Officers.—At the annual meeting of the American Otological Society in Atlantic City, N. J., May 30, Dr. Norval H. Pierce, Chicago, was elected president; Dr. Ewing W. Day, Pittsburgh, vice president, and Dr. George E. Shambaugh, Chicago, secretary.

Eye, Ear and Throat Men to Meet.—The twenty-second annual meeting of the American Academy of Ophthalmology, Oto-Laryngology will be held at the Hotel William Penn, Pittsburgh, October 29-31, under the presidency of Dr. William L. Dayton, Lincoln, Neb.

Milk Experts Hold Meeting.—The annual meeting of the American Medical Milk Commissioners was held in Brooklyn, May 31-June 1 and 2, and the following officers were elected: president, Dr. Otto P. Geier, Cincinnati; secretary, Dr. Alfred Bell, Brooklyn, and treasurer, Dr. L. R. De Buys, New Orleans.

Gynecologists Hold Meeting.—At the forty-second annual meeting of the American Gynecological Society, held in Pitts-

burgh, June 1, the following officers were elected: president, Dr. John G. Clark, Philadelphia; vice presidents, Dr. Henry T. Byford, Chicago, and Brooks H. Wells, New York City; secretary, Dr. George G. Ward, Jr., New York City; treasurer, Dr. Brooke M. Anspach, Philadelphia.

Car for Medical Staff.—A medical car fitted up with a special reference to the examination of the railway employees has been built by the Baltimore and Ohio Railway. The car is to be used as an office for the chief medical examiner of the company, and his staff, and is equipped with all apparatus necessary for making the examination of employees, and for giving instruction in first aid to the injured.

Tri-State Hospital.—The State Hospital for Cripples has asked Arkansas and Mississippi to share in the first cost of the Tri-State Hospital for Crippled Children, which is to be located in or near Memphis. Memphis has promised to give $25,000 for the institution. In the three states there are said to be nearly 10,000 crippled children, most of whom are dependents.

Railway Surgeons Elect Officers.—The sixteenth annual meeting of the Frisco Medical Association was held in Springfield, May 28, and the following officers were elected: president, Dr. James A. Foltz, Ft. Smith, Ark.; vice president, Dr. Elmer E. Liggett, Oswega, Kan.; secretary-treasurer, Dr. Ross A. Woolsey, St. Louis. St. Louis was selected as the place of meeting for 1918.

New Officers for Surgical Association.—The annual meeting of the American Surgical Association was held in Boston, June 2, and the following officers were elected: president, Dr. Thomas W. Huntington, San Francisco; vice presidents, Drs. Albert J. Ochsner, Chicago, and John B. Deaver, Philadelphia; secretary, Dr. John H. Gibbon, Philadelphia. Cincinnati was selected as the meeting place for next year.

Sanitarians Meet in Greenville.—The annual meeting of the Southeastern Sanitary Association was held in Greenville, S. C., May 11 and 12, and the following officers were elected: president, Dr. Mather M. McCord, Rome, Ga.; vice presidents, Drs. A. V. Wood, Brunswick, Ga.; Francis A. Coward, Columbia, S. C.; Carl V. Reynolds, Asheville, N. C., and J. O. Smith, Nashville, Tenn., and secretary-treasurer, Dr. Clarence E. Smith, Greenville, S. C.

New Officers for Laryngological Society.—At the annual meeting of the American Laryngological Society, held in Atlantic City, May 30, it was voted to make the next congress a jubilee in celebration of the fortieth anniversary of its foundation. Dr. J. Solis Cohen, Philadelphia, one of the founders, was chosen to preside. The following officers were elected: president, Dr. Thomas H. Halsted, Syracuse, N. Y.; vice presidents, Dr. John E. Rhodes, Chicago, and Dr. D. Crosby Greene, Boston; secretary, Dr. Harmon Smith, New York City; treasurer, Dr. J. Payson Clark, Boston, and librarian, Dr. Joseph H. Bryan, Washington, D. C.

Throat, Nose and Ear Specialists Hold Meeting.—At the twenty-second annual meeting of the American Laryngological, Rhinological and Otological Society, held in Atlantic City, June 1, Dr. George L. Richards, Fall River, Mass., was elected president; Dr. D. Crosby Greene, Jr., Boston, vice president for the eastern section; Dr. Daniel W. Layman, Indianapolis, vice president for the middle section; Dr. Thomas W. Moore, Huntington, W. Va., vice president for the southern section; Dr. Frank R. Spencer, Boulder, Colo., vice president for the mid-western section; Dr. Harrington B. Graham, San Francisco, vice president for the Western Section; Dr. William H. Haskin, New York City, secretary, and Dr. Ewing W. Day, Pittsburgh, treasurer.

Southern Railway Surgeons Meet.—The annual meeting of the Southern Railway Surgeons' Association was held in Jacksonville, Fla., May 15-17, and the following officers were elected: president, Dr. Aurelius R. Shands, Washington, D. C.; vice presidents, Drs. Joseph A. Goodwin, Jasper, Ala.; Daniel V. McClary, Dale, Ind.; Edgar C. Doyle, Seneca, S. C., and Oliver G. Falls, Kings Mountain, N. C., and secretary-treasurer, Dr. William A. Applegate, Washington, D. C. The prizes for the best papers read at the convention were awarded as follows: first prize, Dr. Hugh R. Black, Spartanburg, S. C.; second prize, Dr. Daniel V. McClary, Dale; third prize, Dr. Aurelius R. Shands, Washington, D. C., and fourth prize, Dr. George P. Neel, Greenwood, S. C.

Civil Service Examinations.—The United States Civil Service Commission announces an open competitive examination for anatomists, both men and women, to be held, July 11, at various places throughout the United States, to fill vacancy in the Army Medical Museum Office of the Surgeon-General, Washington, D. C., at $1,600 a year, and future vacancies requiring similar qualifications will be filled from this examination. The candidate must have at least a collegiate degree, must have a thorough knowledge of the anatomy and be experienced in the dissection of disease-bearing mosquitoes and of the relation of mosquitoes to transmission of the disease. Applicants should apply to the Civil Service Commission, Washington, D. C., or the secretary of the local civil service board for Form 1312, which gives the particulars of this examination.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Mary's Free Hospital for Children, New York City, $15,000; St. Luke's Hospital, New York City, $25,000 by the will of Miss Susan Mount.

German Hospital, Philadelphia, $20,000; Polyclinic and Philadelphia Lying-in hospitals, each $10,000 by the will of William P. Baltz.

Harriman fund for Orthopedics in Yale University to provide for the salary of a professor of orthopedics, who shall divide his time between the Medical School and the University Board of Health, and whose duties in the latter part will be the care of physical deformities in students of the University, a gift of bonds, which will yield an income of $4,600 annually, by Mrs. Edward H. Harriman.

Long Island College Hospital, Brooklyn, more than $45,000, and Dr. John A. Longmore, the medical library and cash valued in all at $89,892.01, by the will of Dr. John A. McCorkle.

Long Island College Hospital, Brooklyn, a donation of $50,000 to the McCorkle Memorial Fund, by friends of the late Dr. McCorkle.

Columbia War Hospital, New York City, a donation of $175,000 by Mr. Daniel G. Reid.

Gaylord Farm Sanitarium, Hartford, Conn., a donation of $100,000 to the endowment fund by Mr. Henry H. McHarg, Stamford, Conn.

Hospitals in Vermont, Massachusetts, and Rhode Island, donations of $600,000 by Ira D. Calef, who died recently in Washington, Vt.

FOREIGN

Bárány Goes to Uppsala.—The University of Uppsala has appointed Robert Bárány of Vienna, instructor in otology, rhinology and laryngology. It will be remembered that he was awarded the Nobel prize in medicine corresponding to the year 1914.

Another Martyr to the Roentgen Rays.—Dr. J. Pujol of Barcelona was the first in that part of Spain to apply therapeutically the Roentgen rays. His Roentgen cabinet was opened in 1897, before science had learned to protect the operator. In time he developed gangrene in both feet, and one leg had to be amputated.

Recent Casualties in the British Army Medical Corps.—Lieut.-Col. W. B. Grandage, in command of a combatant unit, aged 37; Capt. J. F. S. Annesley, aged 52; Capt. P. H. Burton, aged 49; Lieut. J. Rae; Col. J. H. E. Austin, member of the Royal Army Medical Corps since 1887, serving in India, Egypt, South Africa and France; Col. F. A. Symons; Lieut. J. A. Gregory, aged 26; Capt. W. G. Cummings; Capt. H. H. Robinson; Capt. R. F. Russell; Capt. C. A. W. Pope; Capt. R. H. Wilson; Capt. J. E. Black, and Lieut. J. Marshall.

Smallpox at Berlin.—The *Hospitalstidende* of Copenhagen quotes from the *Berliner klinische Wochenschrift*, No. 14, 1917, to the effect that there had been 181 cases of smallpox at Berlin this year, to March 21, and 900 cases in all throughout Prussia. The mortality was about 10 per cent. Physicians were advised to vaccinate anew at once when the first vaccination did not take. They were warned further that, instead of the ordinary scarification, it would be better to make a deeper incision on account of the frequently observed modification of the skin in consequence of the restricted diet. A scratch with a comparatively blunt instrument is better for the purpose than a cut with a sharp knife.

Deaths in the Profession Abroad.—G. Rummo, professor of clinical medicine at the University of Naples, and founder and editor of the Italian medical weekly, *Riforma Medica*, now in its thirty-third year. Rummo defined several clinical pictures before him only vaguely surmised, such as cardioptosis—which is listed in the Surgeon-General's Catalogue as "Rummo's disease"—also diseases of the blood-producing apparatus, certain forms of cirrhosis of the liver, etc.——**O. von Schrön,** professor of pathologic anatomy at the University of Naples since 1864. Besides works on pathologic anatomy he has published others on what he called the "phthisiogenous microbe," on the serous, gaseous and crystalline secretions of bacteria, and on crystallization in general. ——**E. Bejarano** of Madrid, inspector general of the national public health service of the interior.——**U. Fournié,** dean of the physicians of Bordeaux, aged 95.——**Major Greenwood,** an eminent practitioner of London, an authority on medico-

legal matters, novelist and poet, aged 63.——**W. Findlay** of Glasgow, author of "Robert Burns and the Medical Profession," and "Poems of a Physician," aged 71.——**C. Mellinger,** professor of ophthalmology and chief of the eye clinic of the University of Basel, died suddenly, May 21.——**F. Boselli,** assistant at the maternity at Milan, aged 27.——**L. M. Cowley,** professor of hygiene, legal medicine and toxicology at the University of Havana.——**H. Krabbe,** professor emeritus of anatomy and physiology at the Copenhagen Agricultural College, aged 87. His medical training rendered his comparative research on tenia in animals and man particularly important. ——Major **Blandeau** of Paris, in charge of a base military hospital.

LONDON LETTER

London, June 4, 1917.

The War

THE AMERICAN BASE HOSPITALS IN THE BRITISH SERVICE

The arrival of two American hospital units in England has already been announced. The arrival of others in the near future, making six in all, is expected. Some of the units have already left for France. Each unit will take over a British base hospital and furnish a complete staff. Another unit consists of twenty orthopedic surgeons from various parts of the United States under the command of Major Joel E. Goldthwaite. They have come over at the request of Col. Robert Jones, under whom they will work in the British Isles.

ANOTHER HOSPITAL SHIP TORPEDOED

The hospital ship *Dover Castle* was torpedoed in the Mediterranean at 6 o'clock and again at 8:30 on the same evening. The whole of the patients and hospital staff were safely transferred to other ships, but of the crew six are missing and are believed to have been killed by the explosions. This makes the fifth British hospital ship to have been torpedoed without warning since March 20, when the *Asturias* was attacked and thirty-one of the medical service and crew were killed; twelve, including a woman staff nurse and a stewardness were missing, and thirty-nine were injured.

Death from Eating Rhubarb Leaves

The curtailment of food supplies due to the war has led to a number of suggestions as to the use of various articles which do not usually enter into the diet of our people. Some of these suggestions, of which a number were given in a previous letter (The Journal, May 12, 1917, p. 1421) are excellent, but one has had unfortunate results. Several persons became seriously ill as a consequence of following the advice to cook and eat rhubarb leaves, which were declared to be an excellent substitute for spinach, and some died. One case occurred in a clergyman whose death was the subject of a coroner's inquest. According to the evidence of Mr. J. Webster, pathologic chemist at St. Mary's Hospital, traces of oxalic acid were found in the internal organs. Oxalic acid was present in the rhubarb leaves in the form of oxalate potassium and calcium oxalate, there being approximately 10 grains of each to the pound. Dr. B. H. Spilsbury, the pathologist, who made the necropsy, said that death was due to coma consequent on poisoning from the oxalic acid contained in the leaves. In reply to the coroner, who asked whether the quantity present in the leaves was injurious, he said that in the ordinary way it might not be sufficient, but it was a borderline amount and might affect some persons more than others. Asked whether the public should be in any way alarmed about using rhubarb stalks, he said that he did not think so, as there would have been many cases of poisoning if there was any harm in the stalks. But he gave the warning that soda should not be used in cooking them. This had been advised as an economy for sugar. As an article in *Nature* shows, poisoning by rhubarb leaves is not new. Seventy years ago a woman in Chelsea boiled rhubarb leaves as a substitute for spinach, and three persons who ate of the dish became ill. In the *Transactions* of the Horticultural Society for 1848, Solly showed that nearly twice the amount of organic and inorganic matter is present in rhubarb leaves as in the stalks. For more than 100 years the stalks have been extensively used in this country as a substitute for fruit, and only in rare cases of idiosyncrasy have any ill effects been observed.

Bubonic Plague in England

The steamship *Sardinia*, from Eastern ports, arrived at Gravesend, May 2. Between April 27 and May 2, five cases of bubonic plague with three deaths had occurred among the crew. Two further cases occurred after arrival at Gravesend. The patients were removed to a hospital. The cases were limited to the crew of the vessel. The ship was ordered to a mooring station where the cargo was discharged into barges under careful supervision, and precautions were taken to prevent access of rats from the ship to the shore. Complete fumigation was carried out and the ship has since sailed.

A Ministry of Health

The desirability of creating a ministry of public health, which would coordinate the various health services now in existence under a cabinet minister, is being discussed. The Association of Municipal Corporations has passed the following resolution:

> Inasmuch as the conservation and improvement of the public health call for the exercise of wide powers of local government touching the lives of the people at many points and involving questions not only of public medicine but also of engineering, economics and finance, and as these powers have for many years been entrusted to publicly elected bodies under the supervision and regulation of the Local Government Board, and under this system there has been a steady improvement in the health of the people, this council is of opinion that if any further consolidation of public health or extension is desired it should be attained by development of the present organization and the recognition of the Local Government Board as the central public health department.

The Women's Cooperative Guild, in a memorandum on the national care of maternity, has put forward the following demands: 1. The immediate creation of a ministry of health. 2. The provision of adequate government grants to stimulate the work of local authorities and provide a maternity allowance of $2.50 per week for two weeks before and four weeks after confinement for all women whose resources are below the income tax limit of $800 per year. This would amount to making the care of maternity a function of the state. A deputation from the Panel Medico-Political Union (the official organization of the panel physicians) has been received by the president of the Local Government Board in regard to the proposed ministry of health. The chief point emphasized by the union was the necessity of guaranteeing free choice of physician, and it was pointed out that general practitioners were determined in their opposition to a whole-time service. The president in his reply applauded the desire to maintain individualism in practice and to give free choice of physician, and did not favor a whole-time service.

PARIS LETTER

Paris, May 24, 1917.

The War

THE CARE TO BE ACCORDED PATIENTS SUFFERING FROM LEG WOUNDS

At one of the recent meetings of the Surgical Society of Paris, Chevrier, hospital surgeon, gave an interesting talk on the special care to be given patients with leg wounds. These patients must not stand on their feet until their wounds have entirely scarred over, for this position, on account of the unfavorable conditions it imposes on the venous circulation, hinders the process of granulation and thus retards cicatrization. However, this prolonged confinement to the bed must not be simply a passive and negative treatment. The time should be actively employed in preparing the patient to get up. This preparation consists in: (1) the correction of the posture of the injured member; (2) the exercising of the muscles, and (3) the strengthening of the joints. It is important from the standpoint of posture not to allow the patients to assume faulty positions of the thigh, lower leg or foot which it would be necessary to correct later, and which sometimes could be corrected only with great difficulty.

Chevrier proposed a series of efficacious measures to counteract these faulty postures. These measures were: raising the foot higher than the head, putting a sack of sand on the knee, keeping the foot at a right angle, elastic traction, etc. While the patient is confined to the bed, the muscles and the joints should be strengthened by systematic and judicious exercise. The patient's wounds having scarred over, his muscles having been strengthened and his joints having been made supple, he is ready to leave the bed, but before he is allowed to walk freely he must be prepared for it. This preparation, which is for the purpose of aiding the patient to find again his sense of equilibrium, sometimes consists simply of assuring the examiner that this sense has not been

lost, and sometimes it takes on a therapeutic aspect and covers a variable period, which is, however, usually short. The verification comprises two tests: the test of the suppleness and the test of the strength of the injured member. The test of suppleness consists in having the patient assume the position of "attention," with heels together and feet outspread. He is then given the order to crouch, keeping his feet flat on the floor. If he does not crouch at least half way, he should not walk yet. The test of his strength consists in having him raise alternately one leg, then the other, as in marking time. If the patient cannot balance himself on one leg, he cannot walk normally without his knees giving way, since each step in the act of walking requires unilateral support for a fraction of a second. If the tests for ascertaining the suppleness and the strength of the leg do not result satisfactorily, Chevrier changes the method of preparation and gives the exercises a more therapeutic character. This consists in the use, as a form of gymnastics, of the two exercises just mentioned—crouching repeated several times a day in series of thirty or forty movements; and marking time, which should gradually change to a flexion of the thigh on the pelvis until it forms a right angle, with the lower leg pendent.

Owing to this practice of not getting up too soon after the cicatrization of the wound, and the care taken to exercise the muscles and strengthen the joints, there is no necessity for canes and crutches unless there is such noticeable shortening of the leg as not to permit the direct or normal support. One avoids thus numerous troublesome consequences, which arise from the use of crutches and from patients getting up too early, such as: permanent demiflexions of the knee, stiffness, ankyloses and clubfoot.

As for the treatment of rebellious musculotendinous clubfoot by means of elastic traction, etc., Chevrier performs tenotomy of the Achilles tendon under local anesthesia. This is a strictly subcutaneous and not an open tenotomy. After a tenotomy is performed, the foot is immobilized in a plaster cast, being allowed to bend comfortably beyond the right angle. The cast does not extend beyond the knee. The patient should walk with this apparatus and keep it on for three or four weeks. Following this period, after the apparatus is removed, the patient will remain in bed for a time while the foot is massaged and the joints are strengthened by exercising. Only at the end of two weeks will the patient be permitted to walk freely.

Dr. Broca, hospital surgeon and associate professor of the Faculty of Medicine at Paris, after having expressed his approval of Chevrier's advice in regard to patients suffering from leg wounds remaining in bed, remarked that with respect to the treatment of clubfoot by tenotomy the lengthening of the Achilles tendon by a Z incision is much preferable to the transversal tenotomy. As the result of the latter operation, one often observes a wabbling foot, owing to lack of proper cicatrization. This opinion is shared by Delbet, Walther and Mauclaire. Chaput, however, who has performed a large number of subcutaneous transversal tenotomies, has never observed wabbling feet as the result of this operation. He thinks that this infirmity is caused by the fact that the patients are not kept sufficiently quiet. They should be kept quiet for three weeks at least.

LARGE WOUNDS OF THE FOOT

Quénu has made a report to the Surgical Society of Paris containing observations of thirty foot wounds treated in the hospitals by Chalier of Lyons. In one of these cases, the soft parts alone were concerned. In the twenty-nine others, osteo-articular wounds were treated. Quénu insists particularly on the distinction being made between the wounds of the anterior tarsus and of the posterior tarsus. The former are much less grave than the second. The thirty wounds of the foot or instep observed by Chalier resulted in three deaths (one from tetanus, two from gas gangrene), ten total mutilations (amputations of the lower leg), four partial mutilations (partial amputations of the foot), and thirteen recoveries without mutilation. These statistics emphasize the seriousness of wounds of the foot and instep, as observed at the front in contrast with those which are observed in the interior. These were selected cases, for those patients suffering from total or partial crushing of the foot had been eliminated. Nevertheless, Quénu calls attention to the fact that, owing to circumstances, Chalier was not able to operate on these patients, except at the secondary infectious period; whereas, in the case of the foot, as much, if not more than elsewhere, prompt intervention is the prerequisite of success.

Delbet, professor of the surgical clinic of the Faculty of Medicine at Paris, has observed that cases of shattering of the posterior tarsus with crushing of the calcaneum are exceptionally serious. In such cases one must not carry to extremes the principle of conservation. It is sometimes better to amputate than have the patient run grave risks in order to preserve a foot which will be of no use. When should one amputate? That is a question which is not yet quite settled and which, it would seem, deserves discussion. Quénu has tried to rehabilitate Chopart's operation, but Delbet has seen this operation as performed by other surgeons when it yielded deplorable results.

Sebileau, hospital surgeon and associate professor of the Faculty of Medicine of Paris, has had an opportunity of observing thirty cases of foot wounds, and from this experience he has gained the impression that these wounds are not so serious as Quénu maintains. Without performing an operation immediately, but just waiting, not mutilating, but only watching the indications of the present hour, allowing the restoration process to operate in the large warm baths of serum and phenol solution, he obtained the remarkable result that not one of his patients lost a foot or the use of a foot.

Chaput, hospital surgeon of Paris, obtained, on the whole, very good results in the treatment of gunshot wounds of the foot. He had to amputate in only two or three cases, and these patients were inveterate alcoholics who came to him with gangrene of the foot and even of the leg.

Potherat, hospital surgeon of Paris, thinks that, in order to appreciate the seriousness of foot wounds caused by war projectiles, there is no use of making a comparison between what one sees at the front and what one sees at the rear. At the rear, foot wounds, often multiple foot wounds, appear less grave, and conservation carried to the utmost limits produces the most encouraging results. At the front, foot wounds from the outset are serious. The reasons for this are chiefly the anatomic disposition of the foot, and the fact that synovial tendinous or articular sheaths abound which are particularly favorable to infection. The fact that foot wounds become serious at the outset leads to early partial or total amputations at the front. When the patients reach the rear they no longer have foot wounds: these have been amputated. It goes without saying that those who succumb before or after having the foot amputated are also excepted. As for the operations in which these wounds constitute an indication, Protherat recommends highly in cases in which total amputation of the foot is necessary that Syme's amputation be used, which, according to him, offers great advantages. It is an easy operation for a surgeon, rapid, requiring the removal of little of the soft skin of the foot. It can be carried out even after infection has set in. It is easy to adjust an apparatus after recovery; in fact, it can be adapted to the requirements of any apparatus. It produces only a slight shortening of the leg. This operation is therefore much superior to amputation of the lower leg. J.-L. Faure, hospital surgeon and associate professor of the Faculty of Medicine at Paris, has stated that, even as viewed in the territorial hospitals, wounds of the posterior tarsus are serious wounds. They are especially serious when the astragalus is affected. When the superior and inferior astragaloid joints have been opened, particularly the superior astragaloid joint which is the tibiotarsal joint, almost always the evolution of the wounds leads to astragalectomy, sometimes followed by amputation of the lower leg after months of suffering and fruitless attempts at conservation. Faure thinks, moreover, that one must not go to extremes in the matter of conservation, and that often a good amputation of the lower leg is preferable to certain irregular operations which one is induced to perform on the foot, after which the patients walk only poorly.

Kirmisson, hospital surgeon and professor of the surgical clinic for children's diseases of the Faculty of Medicine at Paris, thinks also that an important distinction should be made between wounds of the anterior and the posterior tarsus. The latter are much more serious in connection with the crushing of the calcaneum and the astragalus and the opening of the large joints of the posterior tarsus. As for the partial amputations of the foot, Kirmisson is a strong advocate of the Chopart operation, which he has seen give good results. Of the other partial amputations of the foot, the tibiotarsal and inferior artragaloid disarticulations, and the Pirogoff amputations are also capable of producing excellent results, provided one has supple cicatrices and there is sufficient flesh around the wound. This opinion is shared by Broca.

Marriages

WILLIAM BRADFORD BLANCHARD, M.D., Framingham, Mass., to Miss Bertha Hazel Barker of Meriden, Conn., June 4.

BERNARD LOUIS PLOUFFE, M.D., Webster, Mass., to Miss Cecilia Clare Delhanty of Southbridge, Mass., June 4.

ROY WOODHAMS, M.D., San Francisco, to Miss Beryl Dewey of Healdsburg, Calif., at Santa Rosa, Calif., May 18.

FRANK ROY STEWART MISSNER, M.D., San Francisco, to EVA LILLIAN DURGIN, M.D., Cupertino, Calif., June 3.

PHILIP HASKELL SYLVESTER, M.D., Newton Center, Mass., to Miss Dorothy Young of Haverhill, Mass., June 2.

NICHOLAS AMBROSE GALLAGHER, M.D., Malden, Mass., to Miss Anna B. Bonzagni of Brookline, Mass., June 5.

ARTHUR ACQUILLA BRINDLEY, M.D., Swanton, Ohio, to Miss Katherine Marie Thomas of Lansing, Mich., June 1.

EDMUND JOSEPH BURKE, M.D., LaSalle, Ill., to Miss Millie Christianson of Ettrick, Wis., at Chicago, May 28.

WILLIAM CRAWFORD WHITE, M.D., New York, to Miss Caroline Ruth Taylor of Montclair, N. J., June 1.

CLYDE BYRON TERWILLEGAR, M.D., to Miss Olive Taul, both of Milford, Ohio, at Maysville, Ky., May 19.

CHARLES BARNARD JACKMAN, M.D., Ottumwa, Iowa, to Miss Fawn C. Reed of Delta, Iowa, April 25.

GEORGE NATHANIEL PRATT, M.D., to Mrs. Catherine Margaret Sawyer, both of Chicago, June 9.

HARRY ADKINS GREENWALD, M.D., to Miss Verna Smith, both of Kettle Falls, Wash., May 29.

STEWART J. NIBLICK, M.D., to Miss Elizabeth Janet McLuckie, both of Chicago, June 6.

NED DAVID MILLER, M.D., Wichita, Kan., to Miss Amy Ferguson of Topeka, Kan., June 4.

WILLIAM JOHN KERR, M.D., to Miss Dorothy Campbell Fish, at Los Angeles, June 19.

JAMES WALTER LEVERING, M.D., to Miss Alma G. M. Bains, both of Philadelphia, June 5.

JOHN B. FLICK, M.D., to Miss Ardis Marie Tanguay, both of Philadelphia, May 3.

JOHN B. FRISBEE, M.D., to Miss Marie Gatzmeyer, both of Butte, Mont., May 19.

HERMAN H. FARKAS, M.D., to Miss Pauline Silverman, both of York, Pa., June 3.

LEONARD W. BROWN, M.D., to Miss Grace E. King, both of Cleveland, June 6.

RAYMOND FESER, M.D., Chicago, to Miss Anita Choeco, May 23.

Deaths

Major James Bourke, M. C., U. S. Army, Washington, D. C.; Rush Medical College, 1897; a Fellow of the American Medical Association; aged 47; a graduate of the Army Medical School in 1893, and prior to that time an acting assistant surgeon in the army, whose most recent duty was that of lecturer on military medicine in the medical schools of Wisconsin and Michigan; who had been ill for the last three months and under treatment for nervous breakdown in the Walter Reed General Hospital and later at the Government Hospital for the Insane, Washington, D. C.; died at the Garfield Hospital, Washington, D. C., June 17, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Edward Franklin Smith, M.D., Richmond Hill, N. Y.; Bellevue Hospital Medical College, 1889; aged 49; a Fellow of the American Medical Association, and since April, 1901, the New York correspondent of THE JOURNAL; professor of physiology and hygiene in the Medical Department of Fordham University, New York; visiting and attending physician to the Manhattan Eye and Ear Hospital, and the Northwestern Dispensary; instructor in surgery in the New York Polyclinic; died at his home in Richmond Hill, June 15, after a prolonged illness.

Albert Harris Hoy, M.D., Chicago; Medical College of Ohio, Cincinnati, 1864; Rush Medical College, 1866; aged 74; for many years a practitioner of Chicago but latterly a resident of England; a medical cadet and later acting assistant surgeon, U. S. Army, during the Civil War; formerly a member of the State Medical Society of Wisconsin; who had been in ill health for a long time and whose condition had been rendered more grave by the shock due to the death of his wife and daughter in the sinking of the Cunard steamer *Laconia* in February last by a German submarine; died in London, June 9, from heart disease.

Burnside Foster, M.D., St. Paul; Harvard Medical School, 1886; aged 55; a Fellow of the American Medical Association and a member of the American Dermatological Association; clinical professor of diseases of the skin in the University of Minnesota, and formerly lecturer on the history of medicine in the institution; for many years editor of the *St. Paul Medical Journal;* a member of the staff of the City and County, St. Luke's and St. Joseph's hospitals, St. Paul; died at his home, June 13.

Samuel Benton McGlumphy, M.D., Vermilion, S. D.; Rush Medical College, 1864; aged 79; for seven years assistant superintendent of the Nebraska State Hospital for the Insane; and later superintendent of the Dakota State Hospital; one of the founders, and for two years president of the South Dakota Territorial Medical Association; for ten years a member of the board of health and for one term coroner of Yankton County, and later coroner of Clay County; died at his home, May 25, from pneumonia.

Rollin H. Barnes, M.D., St. Louis; Marion Sims Medical College, St. Louis, 1897; aged 44; a Fellow of the American Medical Association; professor of proctology in the St. Louis College of Physicians and Surgeons; editor and publisher of *The Proctologist*; died in the Polyclinic Hospital, New York, June 3, four days after an operation for appendicitis.

Abraham Maas, M.D., Neosho, Mo.; Jefferson Medical College, 1862; aged 83; formerly a member of the Missouri State Medical Association; regimental surgeon of the One Hundredth Pennsylvania Volunteer Infantry during the Civil War; for one term mayor of Neosho; died in St. John's Hospital, Joplin, Mo., May 26.

Samuel McKee Crowell, M.D., Charlotte, N. C.; University of Maryland, Baltimore, 1895; aged 63; a member of the Medical Society of the State of North Carolina; superintendent and medical director of the Crowell Sanitarium, Charlotte; died suddenly at his home, May 29.

James Madison Duncan, M.D., Calumet, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1870; Missouri Medical College, 1876; aged 63; for more than forty years a practitioner; died at his home, May 16, from cerebral hemorrhage.

Thomas C. McCleery, M.D., Exeter, Neb.; Rush Medical College, 1875; aged 65; a Fellow of the American Medical Association; local surgeon for the Chicago & Northwestern Railway; died in his office, May 1, from cerebral hemorrhage.

Peter Hugh Smith, M.D., Racine, Wis.; Detroit College of Medicine and Surgery, 1895; aged 50; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; died at his home, May 29.

Robert Neilson, M.D., Whistler, Ala.; Medical College of Georgia, Augusta, 1854; aged 93; for more than seventy years a practitioner of Tuscaloosa County, Ala.; died at the home of his daughter, near Eight Mile Station, May 17.

Walter J. B. Tusson, M.D., Covington, La.; Tulane University, New Orleans, 1899; aged 44; formerly a Fellow of the American Medical Association; and an inspector for the state board of health; died in New Orleans, June 1.

Franklin J. Evans, M.D., Iowa Falls, Iowa; University of Pennsylvania, Philadelphia, 1884; aged 71; a Fellow of the American Medical Association; died at the home of his daughter in Friday Harbor, Wash., about May 24.

Daniel Lawrence Meehan, M.D., Battle Creek, Mich.; Lincoln Medical College, Lincoln, Neb., 1895; aged 49; formerly a member of the Nebraska State Medical Association; died at his home, May 22, from heart diesae.

Francis Lavelle Smith, M.D., Detroit, Mich.; University of Michigan, Ann Arbor, 1902; aged 36; a Fellow of the American Medical Association; died in Grace Hospital, Detroit, May 22, from septicemia.

James A. Fergus, M.D., Elm Springs, Ark.; St. Louis College of Physicians and Surgeons, 1905; aged 34; a member of the Arkansas Medical Society; died at the home of his mother in Elm Springs, May 7.

Albert A. Nicholls, M.D., Edmonton, Alta.; Manitoba Medical College, Winnipeg, 1902; aged 44; a member of the Canadian Medical Association; died at his home, February 16, from angina pectoris.

Oliver N. Ainsworth, M.D., Spearfish, S. D.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 65; formerly a Fellow of the American Medical Association; died at his home, May 21.

Forest G. Cosby, M.D., Columbus, Ga.; University of Louisville, Kentucky, 1894; aged 52; for many years a practitioner of Dixon, Ky.; died at his home in that city, April 24, from organic heart disease.

Daniel Goodenow, M.D., Maynard, Mass.; Dartmouth Medical School, Hanover, N. H., 1889; aged 54; while on his way from Florida to New York, died at sea, March 14, from cerebral hemorrhage.

George Mattocks Frost, M.D., Hudson, Ohio; Western Reserve University, Cleveland, 1894; aged 45; a Fellow of the American Medical Association; died at his home, April 14, from pneumonia.

Dallas M. Taylor, M.D., Amsterdam, N. Y.; Long Island College Hospital, Brooklyn, 1874; formerly a member of the Medical Society of the State of New York; died at his home, about May 30.

Charles V. B. Poole, M.D., Broadview, Mont.; Northwestern University Medical School, Chicago, 1903; aged 39; died in St. Vincent's Hospital, Billings, Mont., May 31, from abscess of the brain.

Walter Clark Haupt, M.D., New York; Johns Hopkins University, Baltimore, 1914; aged 30; a member of the staff of the Neurological Institute, New York; died at his home, June 4.

Gilbert Edward Wallace, M.D., Forked River, N. J.; Hahnemann Medical College, Philadelphia, 1896; aged 43; died at his home, March 15, two and half hours after an accidental injury.

Jonathan L. Plummer, M.D., Peoria, Ill.; St. Louis College of Physicians and Surgeons, 1898; aged 69; a resident of Peoria for forty-six years; died in McLean, Texas, May 16.

Charles Emerson Philoon, M.D., Auburn, Me.; Medical School of Maine, Brunswick, 1867; aged 76; a Fellow of the American Medical Association; died at his home, May 18.

James W. Crowley, M.D., Newport, Ky.; Cincinnati College of Medicine and Surgery, 1896; aged 64; a Fellow of the American Medical Association; died at his home, May 9.

Benjamin Hopkins Reed, M.D., Marshalltown, Iowa; American Medical College, St. Louis, 1903; aged 46; died at Flat River, Mo.; May 26, from cerebral hemorrhage.

Johnson W. Gordon, M.D., Bowerston, O.; Columbus, Ohio, Medical College, 1881; aged 64; visiting surgeon to St. Luke's Hospital, Niles, Mich.; died at his home, May 9.

David C. Gore, M.D., Marshall, Mo.; Missouri Medical College, 1876; aged 64; a Fellow of the American Medical Association; died suddenly at his home, May 5.

Myron Douglas Green, M.D., Cincinnati; Miami Medical College, Cincinnati, 1875; aged 65; a Fellow of the American Medical Association; died at his home, May 15.

Frederick Wilhelm, M.D., Akron, Ohio; University of Vienna, Austria, 1892; aged 50; died in the People's Hospital, Akron, June 5, from cerebral hemorrhage.

S. M. Davis, Warren, Ark. (license, Arkansas, 1903); aged 77; a Confederate veteran; for many years a druggist of Warren; died in that place, about May 8.

Robert Scott Stewart, M.D., Ironton, Ohio; Kentucky School of Medicine, Louisville, 1897; aged 54; died at his home in South Webster, Ohio, May 19.

Sylvester L. Ellis, M.D., La Plata, Mo.; College of Physicians and Surgeons; Keokuk, Iowa, 1880; aged 82; died at his home, May 23, from nephritis.

Joseph Bedard, M.D., Muskegon, Mich.; University of Victoria College, Coburg, Ont., 1874; aged 64; also a druggist; died at his home, May 25.

John Bailey Sullivan, M.D., Pittsburgh; Pulte Medical College, Cincinnati, 1888; aged 66; died in the Homeopathic Hospital, Pittsburgh, May 20.

Gustav E. Hanzig, M.D., Ellendale, Okla.; Hahnemann Medical College, Philadelphia, 1888; aged 65; died at his home, May 22.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE RUSSELL EMULSION AND THE RUSSELL PREPARED GREEN BONE

Report of the Council on Pharmacy and Chemistry

The following report on "The Russell Emulsion" and "The Russell Prepared Green Bone," marketed by the Standard Emulsion Company, was submitted to the Council by a referee. The Council endorsed the report and authorized its publication. W. A. PUCKNER, Secretary.

The Russell Emulsion is put up in a neat package and advertised in an attractive pamphlet, on the cover of which we are told: "Truth Always Justifies The Superlative Degree." As what follows in the booklet and in the printed circulars certainly does not lack superlatives this is doubtless a warning.

In addition to the pamphlet and circular advertising, the product seems to be systematically boomed by a lecture scheme in which one Dr. Hague talks before medical societies and distributes advertising matter. The lecture is succeeded by a follow-up letter scheme through which matter is sent to members of the society. Hague ostensibly discusses "lime starvation in tuberculosis," but medical societies soon learned to estimate his work as essentially to advertise the Russell products. Last April the Medical Society of the State of Pennsylvania sent out a circular letter to its county organizations on the subject of the Russell-Hague propaganda which opens in this way:

> "You have doubtless received a letter from Dr. William Grant Hague of New York, offering to address your county society on Tuberculosis. After due investigation it is respectfully suggested that it may not be desirable to ask him to address your society. . . ."

The statements in the pamphlet and circular published are typical of the whole method of exploitation. For example, can such claims as these be surpassed by the veriest quack?

"SCIENCE cannot improve the means employed in producing THE RUSSELL EMULSION."

"GENIUS has not devised better methods than are used in manufacturing THE RUSSELL EMULSION."

"MONEY cannot buy better products than are used in THE RUSSELL EMULSION."

"EXPERIENCE cannot suggest a more nutritious combination of fats than we use in THE RUSSELL EMULSION."

The emulsion is said to be made of equal parts of beef-fat, coconut, peanut and cottonseed oils, held in suspension by albumin. The latter we are told is applied to each globule of the emulsion by an "elaborate technical process" devised by Dr. Russell. The mixture is everywhere spoken of as a "physiological" emulsion but the word is always in quotation marks. Why it is called "physiological" is not clear, but the term may be counted on to impress the unthinking or the unscientific.

Numerous false and exaggerated statements are made about this "physiological" emulsion with reference to food value. For instance:

"The nutritional value of fats differ; the nutritional value of these fats and their increased efficiency by combination over all others have been determined by extensive clinical observation."

And also:

"The Russell Emulsion is approximated in food value by no other emulsion or food product in existence."

"A 'physiological' emulsion is a predigested food. It is absorbed with little assistance from the digestive juices, and with no waste of energy. It is, therefore, the ideal food . . ."

These are sample statements found in the pamphlet and accompanying circular. A dozen or more pathologic conditions are mentioned in which this "ideal food" is specifically indicated, but we find, also, this curious statement: "Patients

can rarely take this dose [speaking of the maximum dose of 2 ounces night and morning] for more than three or four weeks without showing symptoms of over-feeding." This unguarded remark about an ingestion of 48 grams of fat daily prompts one to ask what is wrong with the "ideal predigested food."

Russell is wedded to the idea that "lime starvation" is the main factor in tuberculosis, and insists on the importance of large amounts of fat for the "lime starved."

"Dr. Russell was the original interpreter of the Lime Starved State and originated The Lime Starvation Treatment in tuberculosis. He also first pointed out and emphasized the therapeutic importance of regarding the combination of lime phosphate and casein, as brought down by the rennet enzyme, as a chemical union."

This overworked lime-starvation theory certainly lacks any tangible confirmation (see in this connection a recent paper by Halverson, Mohler and Bergeim, in THE JOURNAL, May 5, 1917), and to urge it to promote the sale of a fat preparation is preposterous. On the uninitiated the exaggerated pseudo-scientific language of the pamphlet and circular advertisement will probably make some impression. Unfortunately such things count not only with the layman who, having no technical knowledge of physiology, cannot be expected to weigh the evidence, but also with those medical men who, while scientifically educated, are influenced by unscientific claims when plausibly presented. The pamphlet is a striking example of a style which is dangerous because it smacks of science.

The Russell Company sells also a mixture called "Prepared Green Bone," said to be made by partially digesting ground chicken bones with hydrochloric acid and pepsin and adding glycerin at the end of the digestion. The product is a sticky, unappetizing looking mass put up in little earthenware boxes and advertised as a lime food, apparently to go along with the fat emulsion. The greater value of a few glasses of milk daily is evidently overlooked.

"The Russell Emulsion" and "The Prepared Green Bone" were declared inadmissible to New and Nonofficial Remedies.

[EDITORIAL COMMENT.—There are always those who are ready to exploit the unfortunate tuberculous. It is, unfortunately, a fact that many physicians accept as true, statements clothed with obscure and voluminous quasi-scientific verbiage. Such men would laugh at the bald claim that the moon is made of green cheese. When, however, one plausibly and with due solemnity, affirms that the nocturnal luminous earthly satellite is composed of an infinite aggregation of molecules of bewildering and awe-compelling complexity, built up from the recently discovered polypeptids, the whole being of a verdant tint, the person addressed looks impressed and opines that it sounds reasonable! The advertising for The Russell Emulsion and The Russell Prepared Green Bone is dangerous because it appeals to the thoughtless—layman and physician, alike.]

SOME MISBRANDED NOSTRUMS

"Sterline's Asthma and Hay Fever Remedy" and "Sterline's Bronchial Elixir."—The National Chemical Co., Sidney, Ohio, was a trade name under which Webster K. Sterline conducted the business of selling his "Asthma and Hay Fever Remedy" and his "Bronchial Elixir." The first product was analyzed by the federal chemists who reported that it was a water-alcohol solution containing potassium and sodium iodids, bromids and acetates, as well as some extractive matter from some laxative plant drug. It was sold under the claims that it would cure asthma and hay fever. These claims the federal authorities declared false and fraudulent and made knowingly, recklessly and wantonly. "Sterline's Bronchial Elixir" was reported by the government chemists to be a solution of morphin, potassium citrate and aromatics in alcohol and water. The claims that it would cure bronchitis and was a remedy for all affections of the mucous membrane were declared knowingly, recklessly and wantonly false and fraudulent. Sterline would neither admit nor deny the charges but entered a plea of *nolo contendere* and was fined $75 and costs.—[*Notice of Judgment No. 4478.*]

Lung-Vita.—The government seized 16 dozen bottles of "Lung-Vita" that had been shipped from Tennessee to Wisconsin charging that the stuff was misbranded under the Food and Drugs Act. The federal chemists reported that "Lung-Vita" consisted essentially of a petroleum oil, saponifiable oil and a solution containing sugar and glycerin, with a small quantity of benzoic acid. The government authorities

STOP!
DON'T LET
CONSUMPTION
TAKE YOU TO
YOUR GRAVE
You have to go sometime but you do not
have to go that way, because
LUNG-VITA CONQUERS CONSUMPTION
druggist, and you will receive in next mail positive proof that LUNG-VITA does overcome
those dangerous diseases of the throat and lungs. If you have any of these troubles,
don't wait until it is too late. Begin the treatment today. It's worth a special trip to
your druggist.
LUNG-VITA IS SOLD AND RECOMMENDED BY ALL DRUGGISTS
Atlanta Jobbers: John B. Daniel and Lamar & Rankin Drug Co.

claimed that it contained no ingredients or combination of ingredients that would cure consumption or asthma or destroy tubercle bacilli, although these and many other claims were made for it. The claims were declared false and fraudulent and applied knowingly, recklessly and wantonly. The Nashville Medicine Company, Nashville, Tenn., appeared and made claim to the property and consented to a decree of judgment of condemnation and forfeiture. The court ordered the United States marshal to destroy the product.—[*Notice of Judgment No. 4511.*]

"Arch Brand Nerve Tonic" and "Arch Brand Blood Remedy."—This, according to the label was made for and sold by the Arch Pharmacal Company, San Francisco, and the National Pharmacy Company of Oakland, Cal., which were charged by the government with misbranding and shipping the products in interstate commerce. The federal chemists declared that the "Nerve Tonic" was a watery solution of sugar, hypophosphorous acid, salts of sodium, potassium, calcium and magnesium with indications of quinin and strychnin. The claims that it was an effective remedy for nervous prostration and for nerve and brain diseases generally were declared false and fraudulent. The "Blood Remedy" was found by the federal chemists to contain over 18 per cent. alcohol, more than 31 per cent. of sugar, with small amounts of potassium iodid, sarsaparilla and emodin-bearing drugs. The claims that it was a cure for piles, scrofula, acute skin affections, and an effective remedy for rheumatism and blood diseases generally were declared false and fraudulent. The company pleaded guilty and was fined $50.—[*Notice of Judgment No. 4477.*]

Dust and Smoke.—A dusty atmosphere is objectionable and unpleasant. It irritates the nose and throat. Smoke may be considered as a combination of the gases of combustion and of dust in the shape of carbon particles. The air is sufficiently free from impurities, such as dust and smoke, practically everywhere except in manufacturing cities and in arid regions during windy periods.—Asst. Surg.-Gen. J. W. Trask, *Public Health Reports.*

Correspondence

POTENCY OF MENINGITIS SERUM

To the Editor:—I desire to call attention to the statement appearing in your editorial, "Epidemic Meningitis" (THE JOURNAL, June 2, 1917), in which you state that, according to experiments in England, some of the meningitis serum as obtained under market conditions seems to be without sufficient virtue to have any curative effect, and in this respect we are "still at the mercy of the manufacturers unless fortunate enough to be able to secure the serum from institutions for research, such as the Rockefeller Institution for Medical Research or the Research Laboratory of the Board of Health, New York City."

In a recent issue of THE JOURNAL, it was also stated that much of the serum manufactured by commercial laboratories was of doubtful potency. I am quite sure that you will agree that such sweeping statements as these are without sound basis.

As a matter of fact, based on the experience of many years in the Public Health Service in the inspection of establishments manufacturing biologic products, I unhesitatingly can state that the manufacture of biologic products in the well established commercial establishments is conducted by men of as high scientific training in their particular field as those supervising the manufacture of the same products in either the Rockefeller Institute or the New York City Laboratory, or any other institution.

I think that neither in your statement, nor in the statements made by others, as to the inefficacy, in certain instances, of antimeningitis serum, has recognition been given to the factors most probably responsible for the unsatisfactory results.

Moreover, I know that a number of the commercial establishments not only use cultures obtained from the Rockefeller Institute and from the New York City Laboratory for the immunization of their horses, but also follow absolutely the methods used in those institutions for the standardization of their serums, and if the methods used in those institutions are satisfactory, it therefore follows that the methods used in the commercial establishments using the same are also satisfactory.

When I was in England about eighteen months ago, I was informed by the medical officers that in those instances in which unsatisfactory results had been obtained with the serum, some of which, by the way, was furnished by a non-commercial laboratory in the United States, the unsatisfactory results were attributed, in part, to the use of serum from horses which had not been immunized with the particular strains of meningococci responsible for the infection. It is my opinion that the unsatisfactory results that are sometimes obtained with antimeningitis serum can be attributed to several factors, among these factors being late administration of the serum, administration of an insufficient amount of the serum, faulty technic in administration, and, what is probably of very great importance, serum prepared from horses immunized with a few strains of meningococci not including the so-called meta—and para—strains.

Finally, it should be borne in mind that the manufacture of antimeningitis serum in commercial laboratories is carried out under the supervision of the United States Public Health Service, and that such statements as have recently appeared in THE JOURNAL at least imply that this supervision is not adequately performed which, I am sure, you will agree is not the case.

JOHN F. ANDERSON, M.D., New Brunswick, N. J.
Director, Research and Biological Laboratories, E. R. Squibb & Sons.

[COMMENT.—It would have been better if we had said simply this, that according to reports in the medical journals it has been found that commercial meningitis serum may be of doubtful potency. On several occasions, statements have been made to the effect that the results expected were not obtained with the serum used (see particularly the discussion by Osler, Robb, Rolleston, Foster and Gaskell in the Royal Society of Medicine, Oct. 19, 1915, as reported in the *British Medical Journal*, Oct. 23, 1915, p. 604; also the editorial statement in the same journal, May 27, 1916, p. 753). Osler states directly that the main cause for want of success was inert serum. In a discussion of the medical problems of the war, based on personal observations in England and France, Welch (*Bull. Johns Hopkins Hosp.*, 1917, **28,** 154) states that at first the results in cerebrospinal fever were very unsatisfactory, and that it was found that practically inert serum had been used both in Great Britain and in France; that serum was examined by Dr. Simon Flexner and found to be worthless, and that with really good serum the results became extremely satisfactory. While the factors enumerated by Dr. Anderson may have been, and are, of great importance, there seems to be no doubt whatever that in some way worthless serum had found its way into the British army and navy, and that some at least of this serum came from America. We are quite prepared to agree that the supervision of the U. S. Public Health Service of the manufacture of antimeningitis serum is performed as adequately and conscientiously as possible under the circumstances; but in view of the lack of definite standards for a polyvalent serum, as antimeningitis serum at present is, there necessarily is left a very considerable latitude for the manufacturer.—ED.]

AN OUTLINE FOR CASE REPORTS

To the Editor:—In the name of economy let us have some editorial regulation as to the form and manner of reporting cases and clinical statistics. System, uniformity, conciseness and graphic contrasts make for saving of comprehension, of patience, of time, of space, of printing, of white paper, and, above all, for the securing of attention to invaluable data which, under the most favorable circumstances, are tedious reading.

The symptoms of a case, I would urge, should be uniformily contrasted thus: (*a*) positive findings; (*b*) negative findings, and (*c*) dubious, uncertain or debatable points which an author finds it necessary to mention.

There should be no difficulty and no objection in adopting a uniform method of recording, such as the following: (1) positive data, which the reader needs to note and bear in mind: (2) negative data for purposes of knowing what might have been expected but did not appear, and (3) discussion of phenomena or observations on which the mind remains suspended.

Groups of cases or symptoms or other objects, phenomena or occurrences should be reported in percentages. A busy reader, however amiable, should never be compelled to keep in mind the number of cases being discussed and how many of the number reported showed this or that feature. It is most exasperating to hold the attention suspended while one hastily endeavors to calculate the percentages for oneself.

J. MADISON TAYLOR, M.D., Philadelphia.

JUNIOR EMERGENCY MEDICAL OFFICERS FOR THE WAR

To the Editor:—The need for physicians in the allied armies is so great and the mortality so high, that the medical schools will be unable to turn out medical men fast enough to replace those that are being wounded or killed. If the war lasts for a considerable length of time we may be as depleted as the European countries are now. The high mortality is proof that physicians are being used for work that does not require fundamental and extensive medical training: work in which the product of the modern medical school is largely wasted. The recognition of these facts has been too long delayed, so that it is now time for action.

What is needed is a large number of "emergency surgeons." When one considers the class of work done on the battlefield, where the fatality is greatest, one will realize that this requires physique and nerves; a technical knowledge of the relatively simple operative surgery and asepsis; of sanitation; of bookkeeping. And very little else. If the medical schools were ordered to direct their energies to the particular training needed for these purposes, in an intensive fashion, they could prepare inside of two years or less a large number of

men who for this purpose would be practically as good as the men whose education now takes five years. This would leave those of complete training and special skill for the more complicated work of staff positions, base hospitals, etc.

The proposition would be for the government to enroll an adequate number of drafted men who have the right kind of preparation, for special courses as "junior surgeons" or "minor surgeons," to be commissioned at the completion of their course as junior lieutenants or ensigns for the war. This would not entitle them to the right to practice outside of this special service in the war; but at the end of the war or when invalided, they would be given an opportunity to complete their medical education along the regular lines, and presumably at the expense of the government.

The medical schools would be running two parallel courses: one for the men enrolled for this special service, and the ordinary courses for those who are for any reason disqualified from service at the front.

I hesitate to develop the details of this special education, which would require very careful study; but merely as a concrete illustration, I suggest tentatively that the ordinary subjects be treated thus:

Subjects	Treatment
Gross, and especially regional anatomy	Fairly complete
Histology	Elementary
Embryology	None
Biochemistry	Elementary
Physiology	Elementary
Bacteriology	Fairly complete
Pathology	Fairly complete, with emphasis on surgery
Hygiene	Complete
Pharmacology	Selective
Surgery	Intensive
Medicine	Elementary
Specialties	Sui generis

The present plans are inadequate, not only quantitatively, but also in principle. The situation is a new and an original one, and has to be met by new and original measures—or not at all.

TORALD SOLLMANN, M.D., Cleveland.

JUSTICE TO THE PHARMACIST

To the Editor:—I must express my pleasure and gratification at the excellent and timely editorial entitled "Justice to the Pharmacist," THE JOURNAL, June 16, p. 1822.

As you already know from Mr. England's letter occurring in the same issue of THE JOURNAL, page 1864, American pharmacy feels that it is deprived of the fullest opportunity to render that competent and specialized pharmaceutic service of which it is capable. No group of men can realize more thoroughly than the medical men how valuable the service of pharmacists could be made under a proper status. You have shown a most commendable and just insight into the situation, and your advocacy of the movement to give pharmacists a rank commensurate with the importance of the service they render and can render is greatly appreciated not only by me personally, but by the American Pharmaceutical Association.

FREDERICK J. WULLING, Minneapolis,
President, American Pharmaceutical Association.

To the Editor:—The letter of Mr. J. W. England, secretary of the council of the American Pharmaceutical Association (THE JOURNAL, June 16, 1917, p. 1864) to which your clear and forcible editorial comment gives a just endorsement, calls attention to a matter in which physicians should actively interest themselves, not only as medical men, but also as patriotic American citizens.

The war into which our country—after all possible delay and every effort to preserve an honorable peace—has been forced, is going to be, as the President so well says, "a grim business." Back of it must be sentiment and enthusiasm; but in its conduct cold, practical common sense is demanded. The necessity of the best attainable medical and hygienic aid to the fighting arm, both in training camps and on the field of battle, is no longer at issue. The importance of the pharmacist as first aid to physician and surgeon ought not to require emphasis. Not only is the technical skill and knowledge of the trained pharmacist required in the procurement and preparation of medicines, antiseptic solutions and the like, but also, with but slight intensive preparation, it could be made highly useful in the hospital wards and in the clinical and research laboratories.

In order that this varied usefulness may be developed to the highest point, and thus contribute to the most efficient conduct of the war and to the best possible care of the sick and wounded, the type of men attracted to the pharmaceutic service of the army and navy should be high, and their merit should be adequately recognized by their commissioning as officers. It might be well if physicians would write to the Medical Department of the United States Army in support of the movement which has been initiated by the American Pharmaceutical Association.

SOLOMON SOLIS COHEN, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ERCOLANI'S SUPRARENAL TREATMENT IN NEPHRITIS

To the Editor:—In THE JOURNAL, June 2, 1917, p. 1670, there was an abstract of an article on "Suprarenal Treatment in Nephritis," by P. Ercolani, from the *Gazetta degli Ospedali e delle Cliniche*. This journal is not in the library here, and I should like to know the method of administration of the epinephrin and in what quantities it is given. Can you give me this information?

THOMAS H. KELLY, M.D., Cincinnati.

To the Editor:—I am interested in the article "Suprarenal Treatment in Nephritis," abstracted recently in THE JOURNAL. I should like to have full particulars in reference to size of dose, how often and how administered, and any special preparation. Should I expect increased blood pressure while giving epinephrin?

W. C. RAMSEY, M.D., Kent, Ohio.

ANSWER.—Ercolani does not describe his technic, referring for this to his previous works on the subject in the *Rivista medica*. His first works date from 1910, since which time he has published reports nearly every year. He mentions parenthetically in the article reviewed in THE JOURNAL, June 2, speaking of the objection that epinephrin might induce arteriosclerosis, that he has treated elderly persons of 80 with uremia with 60 drops a day of the solution of epinephrin, without interruption over long periods and without the slightest inconvenience. The pulse seemed to be more elastic and softer while the epinephrin was being taken. He also cites a writer who reported the case of an asthmatic woman who could take up to 120 drops of the 1:1,000 solution at a time, and who took forty-four bottles in the course of three years (ounce bottles), one hypodermically. Necropsy showed no more changes in the walls of the arteries than would be expected at her age. Ercolani cites Paoloantonio's report of the use of epinephrin in thirty cases of scarlatinal glomerular nephritis, published in the *Policlinico*, 1913, **20**, 751. He says that he followed Ercolani's suggestions and mentions giving 2 or 3 drops of the 1:1,000 solution of epinephrin for each year of the child's age. He stated that the administration can be by the subcutaneous route, or by the mouth, in doses of from 10 to 20 drops a day for a child between 5 and 10, according to the severity of the symptoms.

Increase in Industrial Accident Mortality in 1916.—The recently compiled statistics of the Metropolitan Life Insurance Company during the year 1916 on 9,000,000 white lives insured in its industrial departments, concludes that the accident rate for the working classes of the United States increased five per hundred thousand living over the mortality showing for 1915. This condition is contrary to the more recent tendency, and may be the result of the increased activity in industry and in the speeding-up processes incident to war conditions. The mortality from automobile accidents and injuries shows far the largest increase in the rate for any of the specified cause of accidental mortality.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 9. Chairman, Dr. S. W. Welch, Montgomery.

ALASKA: Juneau, July 3. Sec., Dr. H. C. DeVighne, Juneau.

ARIZONA: Phoenix, July 2-3. Sec., Dr. John W. Thomas, 306 Goodrich Bldg., Phoenix.

CALIFORNIA: San Francisco, July 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.

COLORADO: Denver, July 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular: New Haven, July 10-11. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

CONNECTICUT: Eclectic: New Haven, July 10. Chairman, Dr. John W. Fyfe, Saugatuck.

CONNECTICUT: Homeopathic: New Haven, July 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, July 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

INDIANA: Indianapolis, July 10-12. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

MAINE: Augusta, July 5-6. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, July 10-12. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEBRASKA: Lincoln, July 2. Sec., Dr. E. Arthur Carr, 516 Bankers Life Bldg., Lincoln.

NEW HAMPSHIRE: Concord, June 25-26. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

NEW MEXICO: Santa Fe, July 9. Sec., Dr. R. K. McClanahan, U. S. Naval Hospital, Las Animas, Colorado.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 26-29. Sec., Dr. Willard J. Denno, Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, July 3. Sec., Dr. George M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 10-11. Sec., Dr. R. V. Smith, Tulsa.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 10-12. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.

RHODE ISLAND: Providence, July 5. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

SOUTH DAKOTA: Deadwood, July 10. Sec., Dr. Park B. Jenkins, Waubay.

UTAH: Salt Lake City, July 2-3. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 10-12. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Seattle, July 3-5. Sec., Dr. C. N. Suttner, Walla Walla.

WEST VIRGINIA: Charleston, July 10. Sec., Dr. S. L. Jepson, Capitol Bldg., Charleston.

WISCONSIN: Milwaukee, June 26. Sec., Dr. J. M. Dodd, 220 E. 2nd St., Ashland.

WYOMING: Laramie, June 27-29. Sec., Dr. H. E. McCollum, Laramie.

Higher Requirements in Montana

At a meeting held April 3, 1917, the Montana State Board of Medical Examiners adopted a resolution which requires that all applicants who graduate after July 1, 1917, and who seek a license to practice medicine in that state, must present a diploma issued by a medical school rated in Class A by the American Medical Association. This action establishes a minimum standard of preliminary education as follows: For applicants graduating prior to Jan. 1, 1918, a four-year high school education; for those graduating in 1918 to 1921 inclusive, one year of premedical college work, including courses in physics, chemistry and biology; and for all candidates graduating in 1922 and thereafter two years of premedical college work, including the sciences named.

The board also adopted a resolution requiring that, after April 3, 1917, all applicants who have graduated from a medical school outside the United States shall be required to present evidence of having attended at least one full course of study in a medical school in the United States rated in Class A by the Council on Medical Education of the American Medical Association.

Alaska's New Medical Practice Act

At the recent session of the territorial legislature of Alaska the medical practice law heretofore in effect was repealed and a new law enacted. The new law provides that examinations be held in March and September each year. Members of the board are appointed for a term of four years. The definition of the practice of medicine has been made more comprehensive. The clause exempting osteopaths from the provisions of the act was cut out. The board was given authority to revoke licenses for unprofessional conduct. The requirements of preliminary education are to be those held by the Association of American Medical Colleges at the time the candidate graduated. This means that at present a four-year high school education is required. After Jan. 1, 1918, applicants must show that before beginning the study of medicine they completed, in addition, one year of college work, including courses in physics, chemistry and biology. After Jan. 1, 1922, in addition to the high school education the applicant must have completed two years of college work before entering on the study of medicine. The new law gives the board authority also to require applicants to have completed a year's internship in an approved hospital before being eligible for the license. In grading the papers of applicants, the law provides that one per cent. may be allowed for each year of practice after the first two years.

Colorado April Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, April 3, 1917. The examination covered 8 subjects and included 80 questions. The percentage required to pass was 75. Thirty-nine candidates were examined, of whom 35 passed, including 30 osteopaths, and 4 failed, including 2 osteopaths and 1 drugless practitioner. Ten candidates were licensed through reciprocity. The following colleges were repesented:

College	PASSED	Year Grad.	Per Cent.
Hering Medical College		(1906)	*
Kansas Medical College		(1900)	80.2
Tulane University of Louisiana		(1916)	85
Woman's Medical College of Pennsylvania		(1914)	85.3
Vanderbilt University		(1916)	83.5
	FAILED		
St. Louis College of Physicians and Surgeons		(1915)	65.5

* No grade given.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
American Medical Missionary College		(1906)	Michigan
Rush Medical College		(1914)	Illinois
Tulane University of Louisiana		(1906)	Arkansas; (1908) Alabama
University of Maryland		(1906)	Maryland
Boston University		(1905)	Mass.
Harvard University		(1910)	Maine
Barnes Medical College		(1899)	Texas
Ensworth Medical College		(1905)	Missouri
Kansas City Hahnemann Medical College		(1903)	Kansas

District of Columbia April Examination

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, April 10-12, 1917. The total number of subjects examined in was 16; total number of questions asked, 80; percentage required to pass, 75. Ten candidates were examined, of whom 6 passed, and 4 failed. The following colleges were represented:

College		Year Grad.	Per Cent.
George Washington University		(1910)	82; (1916) 79.7, 80.5, 86.1.
Baltimore Medical College		(1909)	76.1
University of Maryland		(1915)	83.5
	FAILED		
Baltimore Medical College		(1905)	68.6
College of Phys. and Surgs., Boston*		(1916)	69.9
Jefferson Medical College		(1912)	68.1
Meharry Medical College		(1916)	71.7

* This college has been reported not recognized by the Massachusetts Medical Society.

Nevada May Examination

Dr. Simeon L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, May 7-9, 1917. The examination covered thirteen subjects including 100 questions. The percentage required to pass was 75. Six candidates were examined, all of whom passed, and 11 candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Phys. and Surgs., San Francisco		(1904)	83.5
Cooper Medical College		(1894)	87.4
University of Louisville		(1916)	91.3

Baltimore University	(1896)	83.3
Long Island College Hospital	(1899)	87.4
Western Reserve University	(1887)	83.5

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery		(1915)	Iowa
Rush Medical College	(1896) (1898) Utah;	(1914)	Illinois
University of Illinois		(1915)	Illinois
University of Louisville		(1904)	W. Virginia
University of Michigan Medical School		(1909)	Utah
Missouri Medical College		(1876)	Missouri
St. Louis College of Physicians and Surgeons		(1892)	Illinois
Jefferson Medical College of Philadelphia		(1905)	Penna.
Western Pennsylvania Medical College		(1899)	Penna.

Utah October and January Examinations

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Oct. 6, 1916. The examination covered 19 subjects, and 100 questions were asked. The percentage required to pass was 75. Seven candidates were examined, of whom 6 passed, and 1 osteopath failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
Rush Medical College	(1915)	(1916)	2
Western Reserve University	(1915)	(1916, 2)	3
Medico-Chirurgical College of Philadelphia	(1916)		1

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago		(1912)	Illinois

THE JANUARY EXAMINATION

At the examination held in Salt Lake City, Jan. 2-3, 1917, three candidates were examined, all of whom passed, and two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Loyola University		(1917)	82
Harvard University		(1917)	84
Baylor University		(1916)	78

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago		(1908)	Idaho
Northwestern University		(1915)	Illinois

Book Notices

CARE OF PATIENTS UNDERGOING GYNECOLOGIC AND ABDOMINAL PROCEDURES BEFORE, DURING AND AFTER OPERATION. By E. E. Montgomery, A.M., M.D., LL.D., Professor of Gynecology in Jefferson Medical College. Cloth. Price, $1.25 net. Pp. 149, with 61 illustrations. Philadelphia: W. B. Saunders Company, 1916.

This book contains brief though well worded descriptions of the usual methods of preparing gynecologic patients for operation, and of the after-treatment of the first few days, for the guidance mainly of the nurse. Following these is a description of operations, much of which is intended for the hospital intern and the assistant to the operator. Eighty-five of the 140 pages deal entirely with the technic of operations, and considerably more than a fourth of these are devoted to the description of operations not related to gynecology, for instance, operations on the gallbladder, stomach, intestine, kidney and spleen. With the description of each operation is an illustration showing all the instruments used for that operation. As a result, the same instruments are shown over and over again.

THE DIAGNOSIS AND TREATMENT OF ABNORMALITIES OF MYOCARDIAL FUNCTION. With Special Reference to the Use of Graphic Methods. By T. Stuart Hart, A.M., M.D., Assistant Professor of Clinical Medicine in the College of Physicians and Surgeons, Columbia University. Cloth. Price, $4.50. Pp. 320, with 248 illustrations. New York: Rebman Company, 1917.

This book treats of the irregularities of the heart—bradycardia, block, extrasystole, tachycardia, flutter, auricular fibrillation, pulsus alternans, etc. The investigator or student who desires to specialize in heart disease will not find in it the help that is needed, for the author does not go deeply into fundamentals. Nor will it enable the practitioner to understand or use either the polygraph or the electrocardiograph. But it will aid the practitioner to read and correctly interpret the tracing made by either one of these instruments, and this is its purpose. The chief emphasis is laid on the graphic methods of studying heart disease. Furthermore, while theoretical and pathologic considerations are not ignored, the clinical side is constantly kept in the foreground. The illustrations are good, the explanations clear. The subject of treatment is given a prominent place and is well handled. The bibliography is well selected; there is a helpful index. Some of the sentences are not written in as scholarly or even as correct English as one might wish. But, taken as a whole, the book should prove helpful to the practitioner.

LA NÉVROSE D'ANGOISSE ET LES ÉTATS D'ÉMOTIVITÉ ANXIEUSE CLINIQUE—PATHOGÉNIE—TRAITEMENT. Par le Dr. Francis Heckel. Paper. Price, 10 francs. Pp. 535. Paris: Masson et Cie, 1917.

This is a luxuriantly verbose presentation of the author's ideas on Freud's old anxiety neurosis, which in its most intense form with distinct physical symptoms may reach the point of agony. The author calls himself "a specialist in diseases of nutrition," in which domain he may be a bright and constant light. Of the psychoneuroses he writes like a fluent amateur, and one gains the impression that the book was written for the instruction of no one but to impress laymen and ignorant general practitioners with the desirability of consulting the author. Some of the descriptions of symptoms are good, and some of the items of treatment are excellent; but the book is neither a scientific exposition nor a reasonable guide to treatment.

TEXT BOOK OF SURGICAL OPERATIONS ILLUSTRATED BY CLINICAL OBSERVATIONS, FOR PHYSICIANS AND STUDENTS. By Fedor Krause, Directing Physician, Augusta Hospital, Berlin, and Emil Heymann, M.D., Chief Physician, Augusta Hospital. Translated into English and Edited by Albert Ehrenfried, A.B., M.D., F.A.C.S., First Assistant Visiting Surgeon, Boston City Hospital. In Six Volumes, Volume 2. Cloth. Price, $7. New York: Rebman Company, 1917.

This volume deals with operations on the upper and lower jaws, surgical affections of the oral cavity, pharynx and salivary glands, surgery of the facial and cervical nerves, and surgery of the brain. There is the same general clinical character which was described in the review of the first volume of this work (THE JOURNAL, Feb. 5, 1916, p. 451), and this volume is also profusely illustrated with excellent colored plates. The chapter on the surgical treatment of epilepsy is interesting, and the author is conservative in his views as to the operative results in this condition.

PRACTICAL URANALYSES. By B. G. R. Williams, M.D., Director of Wabash Valley Research Laboratory. Cloth. Price, $1.25 net. Pp.142, with 11 illustrations. St. Louis: C. V. Mosby Company, 1916.

"This manual is not to be regarded as anything aiming at completeness, but as a guide for the student and practitioner, in those diagnostic methods likely to be encountered from day to day. Much emphasis has been placed on findings often considered minor, and but little attention given to questions which might interest the specialist or research worker." The text is clear and concise. The selection of tests is excellent, while the discussion of their fallacies and significance is especially commendatory. The book should prove an acceptable addition to the library of every practitioner.

CLINICAL AND LABORATORY TECHNIC. By H. L. McNeil, A.B., M.D., Adjunct Professor of Medicine, University of Texas Medical School. Cloth. Price, $1. Pp. 88, with 25 illustrations. St. Louis: C. V. Mosby Company, 1916.

This is intended to furnish a description of the methods in common use in the routine work of the John Sealy Hospital, Galveston, Texas. The laboratory tests outlined are the usual daily methods, and cover the field in a sufficiently comprehensive manner for the general practitioner or internist who may wish to perform the common laboratory technic for himself. The text is limited to the practical details, all theoretical considerations being omitted. The book should prove a useful one for daily use.

Social Medicine, Medical Economics and Miscellany

DEFECTS IN ENFORCING THE PRELIMINARY REQUIREMENTS IN ENGLISH

ROGER S. MORRIS, M.D.
Professor of Medicine, University of Cincinnati, College of Medicine
CINCINNATI

Tremendous advances have been made in medical education in the United States in the last fifteen years. The elimination of a large number of very weak schools has been accomplished, and laboratory and clinical teaching has been generally improved. Probably the greatest single gain is the more thorough preliminary education required of the medical student. At least one or two years of college work in specified subjects are now required, and within a few years the two years' requirement for entrance to medical schools will, no doubt, become general.

In adopting the higher requirements, it is well that we should check ourselves occasionally, to determine whether or not we are enforcing our demands in a manner to produce the desired results.

In an examination of nearly a hundred papers written recently by fourth year students from ten Class A plus medical schools, I have been struck by the frequency, and often by the horrors, of errors in spelling and in the simplest rules of grammar. Of ninety-four papers, there were forty-seven in which inexcusable mistakes were found. The student may feel that ability to write English correctly is a mere nonessential; that a knowledge of medical facts and theories is what he needs. And this may possibly be true if he is looking forward to practice among a clientele limited to the uneducated, and, therefore, to those least able to pay adequately for his professional services. Surely, no student is fired with such an ambition. If, on the contrary, the prospective practitioner aspires to have among his patients the educated, well-to-do classes in the community, then it should be evident to him that to be able to speak and write his native tongue with a fair degree of accuracy is absolutely necessary.

Mistakes in spelling, when few in number and trivial, may often be excused in the hurry and tension of a written examination. But no such excuse can account for spelling pectoriloquy "pectorilliquity," "pectoriliquoy" and "pectorleque." Likewise, when one finds empyema spelled "empyemia" consistently in nine papers, it is evidence of mental carelessness on the part of the writers, and causes one to wonder whether empyema and pyemia are looked on, perhaps, as synonyms. Fancy the impression on a medical editor of referring to the *Diplococcus pneumoniae* as the "diplococcus pneumonii," "the pneumonococcus diplococci organism," "pneumococcus lancelotus," "bacilus of Frankle," "pneumococcus Bacillus of pneumonae of Fraenkel," "pneumococcus of Friedlander" or "Pneumococcus or B. Lancillatus." A paper containing such errors would receive, and deserve, a place in the waste basket. Even more damning would it be for the young physician to read such matter before an audience of his colleagues.

The mental obtuseness which leads to such weird spellings of scientific terms as those cited finds its source in the earlier training of the student who, for a much longer period, has been making such mistakes as "verulence," "disappitation," "gasses," "shalow," "comming," "voise," "rarrer," "tenatious," "paler" (for pallor), "receeds," or in using phrases such as, "once and awhile." It is only natural that, later, such an individual should write "procussion," "precussion," "staphlococcus," "staphlacoccus," "coccae," "spleenic," "rals," "rauls," "rähls, "rahls," "choriza," "myochorditis," "endochordits," "perichordite," "serosangenaies," "malies" and "cynosis," to cite only a few examples.

That the student too frequently does not comprehend the exact meaning of the terms he employs is seen when vocal and tactile fremitus are described as two separate and distinct phenomena—a frequent mistake in the papers. That his eyes have not seen the written page one would suppose, in reading of "undissolved pneumonia" or of "very tenacious and rustic sputum."

By a considerable number, capitals are inserted where they have no place. Only one of the writers showed signs of a distinct aversion to them. As an example of his customs, two consecutive sentences, descriptive of a patient with lobar pneumonia, may be quoted. "he is very restless. they are sometimes delirious." The cerebral side track which resulted in the change from singular to plural is not elucidated by the context.

Failure in distinction of meaning of such simple words as "affected" and "effected" is surprisingly common; a large percentage of the writers referred to the "effected part of the lung" in discussing pneumonia. "Mucus" and "mucous" are not infrequently confused, as "mucus rales," "a plug of mucous."

A total disregard for punctuation is often encountered, though one of the offenders did hint at having heard of such a thing when he said, "As the toxaemia increases may have stupor, delirium and pass to comma and death." The author of the following, doubtless subscribing to similar views, is plainly not toying with fate: "Symptoms are those of chill followed by a fever which arises very high, 104-5-7° F. and sweats dyspnea vomiting cough and pain in the chest."

A mental training, or a lack of it, which results in blunders such as those I have described inevitably leads to faulty expression and to confusion of ideas. "The symptoms is sudden in onset. There may be noticed restleness and other signs of extreme uncomfortness. The pneumococci is the principle primary cause. There is exceptional cases at sometimes" is not an example of perfect diction, whatever merit the statements may otherwise possess. Nor are the following sentences examples of lucid English: (*a*) "Predisposing causes are age occurring in children 5-20 years and in the old debilated," or (*b*) "The Etiology of Lobar Pneumonia contains of Predisposing Causes of age—debility and lower resistence, and Exciting Cause of the Pneumococcus." Again, what can be meant by the statement, "The chinese race is particularly immune from the disease, although the disease is fairly common among them." One is startled to learn that "as the disease progresses the appearance on inspection progresses or diminishes," and one is actually puzzled at the information that abscess of the lung "may lead to gangrene of the lung which does not occur." An example of a mistake which may have been one of haste is, "The patient develops a dry cough which later becomes tinged with blood"; when we are told that the "patient lays on the affected side," the natural assumption is that, if turned, he will become less prolific.

It is humiliating to think that men and women who can be guilty of such offenses are to be admitted to the medical profession, and particularly so when one realizes that all of them have spent four years in a preparatory school and one or two years in a college—one is almost tempted to say, in a "college of illiterate arts."

Remedies are patent. The medical schools can accomplish much, provided they have the will. Students who show such gross ignorance of English as those from whom I have quoted above should not be allowed to pass the first term of the freshman year in medicine. To borrow a baseball phrase, they should be "farmed out—sent to the bushes—for further seasoning" in English. It is unfair to allow such a student to proceed, for it is perfectly plain that he or she has failed to meet the entrance requirements, and is, therefore, not entitled to enrolment in the medical school.

The primary source of the trouble rests, of course, with the teachers of English (and of other subjects) in the preparatory schools and colleges. Unless greater proficiency in English is required by them, the medical schools will continue to receive from these teachers approved illiterates among their matriculants. A concerted stand on the part of all the medical schools, which would result in a uniform exclusion of students found to be deficient in English, would remedy the present deplorable conditions within two or three years, in my opinion. The students affected would have a fancied—and real—grievance, but the good which would result from such action to medical, collegiate and preparatory education would make the suffering of the few negligible.

Medicolegal

Not Entitled to Artificial Arm as "Apparatus"

(Kunasek vs. New York Consolidated Card Co. (N. Y.), 162 N. Y. Supp. 361)

The Supreme Court of New York, Appellate Division, Third Department, answers in the negative a question submitted by the state industrial commission as to whether claimant Kunasek, who had lost his right arm in an accident and had been awarded full compensation under the workmen's compensation law, was entitled in addition thereto to an artificial arm, which he demanded during the first sixty days after his injury. The court says that this brought to it the question whether an artificial arm is an "apparatus," within the meaning of the provisions of Section 13 of the law. That a natural arm is not to be considered as an "apparatus" must be clear to any one who stops to consider the matter for a moment. It seems clear that the statute in this case does not contemplate anything more than the apparatus necessary or proper for the first sixty days of intelligent and practical treatment of the injured employee, and there can be no justification for holding that an artificial arm is an apparatus any more than the natural arm would be an apparatus. An implement would certainly not be defined so as to include an artificial arm, and there is no occasion for construing apparatus in a broader scope, the two words being practically synonymous as generally used. No doubt the claimant could have called for any apparatus which was necessary or proper in the treatment of his health or strength during the sixty days following his injury, and it would have been the duty of the employer to supply them, under the conditions prescribed by the statute; but to contend that the claimant could by a mere arbitrary demand impose the duty of supplying a new arm, when he had been fully compensated for the old one, was wholly without warrant in law. It was not necessary to consider the question of whether the artificial arm could have been used within sixty days of the injury.

Improper Basis for an Opinion

(Switzer vs. Baker et al. (Ia.), 160 N. W. R. 372)

The Supreme Court of Iowa, in reversing a judgment obtained by the plaintiff for alleged personal injuries from having been struck by an automobile, says that on the subject of the plaintiff's physical condition at the time of the trial a physician was examined as an expert in her behalf. The physician appeared never to have treated the plaintiff professionally, and made no examination of any kind, except what he spoke of as a "mental examination," consisting of a series of questions concerning the history of her case, and the differences, if any, between her physical and nervous condition before and after her injury. This interview was held but one or two days before the trial, and its evident purpose was to qualify the physician to testify as a witness in the plaintiff's behalf. Such purpose was entirely legitimate, and reflected no discredit on the plaintiff or the witness, and, had the latter found such symptoms of such observable abnormal conditions as led him to the conclusion that the plaintiff was afflicted with nervous prostration, then unquestionably his testimony to that effect would be entirely competent. But he expressly stated that he made no examination except to get from the plaintiff her version of the history of the case, and on this information, supplemented by other statements from another physician and a named woman, his opinion was formed. The witness did not state what facts he ascertained from the plaintiff or from the other physician or from the woman. That an opinion so expressed is not competent evidence is the view approved by many authorities. It was not necessary in this case to hold, and the court must not be understood as holding, that a physician called to treat a patient may not in making his diagnosis properly consider such patient's statement of her case and her condition together with the statements of other attending physicians concerning the case, or that an opinion based on his own observation and judgment as thus enlightened is not competent evidence in a proper case. On the record here made, the court need go no farther than to hold that, where a party alleged to have been injured calls in an expert for the purpose of enabling him to testify in her behalf, such expert being a stranger who has never treated her professionally and makes no examination of the patient except to question her in regard to her past and present condition, and to obtain the reports or statements made by others concerning such conditions, his opinion, based wholly or in part on such information, is not competent evidence and should be excluded from the jury. It should be added that some members of the court are of the opinion that a medical expert may properly testify to his diagnosis based on the history of the case as made to him by the patient, but may not found his opinion on statements to him by third persons. However, for the purposes of this case it was not necessary that the court decide on the admissibility in evidence of a diagnosis of the kind first mentioned, because the expert witness admittedly drew his conclusion in part from information derived from persons other than the plaintiff.

Liability for Roentgenographic Burn—"Res Ipsa Loquitur" —Care Required

(Holt vs. Ten Broeck (Minn.), 159 N. W. R. 1073)

The Supreme Court of Minnesota affirms a judgment for $2,500 damages in favor of the plaintiff for injury from a burn alleged to have been caused by the negligence of the defendant in taking a roentgenogram. The court says that, in February, 1915, the plaintiff was under treatment for some trouble in her hip supposed to be a fracture or a dislocation. Her attending physician desired a roentgenogram. The defendant, a regularly licensed physician, took it. A few weeks afterward a sore developed on the plaintiff's hip which it was claimed was the result of a roentgenographic burn. The evidence was sufficient to sustain a finding that the Roentgen ray caused the sore. The testimony of the plaintiff was that there was none before. It was at the point of the exposure. There was medical testimony having a tendency to prove that it came from a roentgenographic burn. The question was for the jury. To recover damages it was necessary that the plaintiff prove negligence in the defendant. There was little direct evidence of negligence. The plaintiff claimed that during the progress of the taking the defendant made some exclamation to the effect that the machine was not working right. Her claim was that the exposure was unduly long, but her testimony did not strongly support it. A physician sufficiently qualified to give an opinion as an expert stated that a proper application of the rays would not produce the result which he found. The evidence was that with a proper machine and with a proper use of it a burn is unusual. There was evidence that the machine was a proper one. The machine and its operation were wholly under the control of the defendant. Under such circumstances the rule of *res ipsa loquitur* (the matter speaks for itself) applies. It did not follow from this, as the plaintiff's counsel argued, that the burden shifted to the defendant of proving freedom from negligence. "*Res ipsa loquitur*, where it applies, does not convert the defendant's general issue into an affirmative defense." The language quoted was approved in a case in which this court held that the *res ipsa loquitur* rule merely permits the jury to draw an inference of negligence, and "the jury is to consider and weigh the inference, in the light of all the facts and circumstances, and give it such weight as tending to prove negligence as they deem it entitled to." It does not follow from what is here said that the *res ipsa loquitur* doctrine applies to a bad result or mishap coming from a physician's treatment. The rule does not apply in such cases. In determining negligence it can make no difference whether the one operating the roentgenographic appliance is a physician or a lay expert. The care required is ordinary care. It is the care exercised by and to be expected from one reasonably skilled in the use of the appliance. The rays were not applied for curative purposes, but to obtain information. This is the logical if not the necessary result of the holding in *Henslin* vs. *Wheaton*, 91 Minn. 219, 97 N. W. R. 882, that in an action against a physician for negli-

gence in the use of a roentgenographic machine he was not entitled to have the question of his skill determined by physicians of his own school. A physician who qualified himself as an expert in the application of the Roentgen ray was permitted to give his opinion, based on the result of the operation, that the application was improper. This was not error. The verdict was for $2,500. The defendant claimed that it was excessive. The trial occurred a year after the injury. After the injury developed the plaintiff wandered from doctor to doctor for several months. Finally she went to the hospital. She was there six months. The pain had been considerable. At the time of the trial, so her claim was, she was unable to work. The sore was still open and of considerable extent. One physician said it was uncertain whether it would be permanent. The verdict was not excessive.

Neither Surgeons nor Charitable Hospitals Liable for Negligence of Nurses

(Morrison vs. Henke et al. (Wis.), 160 N. W. R. 173)

The Supreme Court of Wisconsin affirms a judgment dismissing this action against two surgeons and a charitable hospital association to recover damages for alleged negligent treatment of the plaintiff following an operation for appendicitis while a patient at the hospital. The court says that the case was tried to a jury, which found: (1) that certain sores on the plaintiff's leg were caused by a burn from a hot-water bottle placed in his bed at the hospital; (2) that the nurses placed in charge of the plaintiff were incompetent; (3) that the defendant surgeons were wanting in the exercise of ordinary care in permitting such nurses to attend the plaintiff after the operation; (4) that such want of ordinary care was the proximate cause of the plaintiff's injury; (5) that the nurses who had charge of the plaintiff were wanting in the exercise of ordinary care in their care and attendance on him; (6) that such want of ordinary care was a proximate cause of the plaintiff's injury, and (7) damages in the sum of $700. But, having examined the evidence relative to the alleged negligence of the surgeons, the court is satisfied that the finding that they were wanting in the exercise of ordinary care in permitting the nurses to attend the plaintiff after the operation was properly set aside. There was no evidence to show that if the nurses were incompetent—a fact by no means clearly established—the surgeons knew or were chargeable with knowledge of such incompetence. They were not hired by the surgeons, but by the hospital, and no fact was shown coming to the knowledge of the surgeons sufficient to put them on inquiry as to the nurses' competency. In the absence of such fact, they had a right to assume that the nurses were competent. The action was also properly dismissed as to the defendant hospital association. The evidence showed that it was an eleemosynary institution paying no dividends and was largely supported by charitable donations; that the fees charged from patients able to pay did not support it, and that the weekly charge to the plaintiff was not enough to cover the cost of the services rendered to him. The authorities in this country almost uniformly hold that, in the absence of negligence in their selection, charitable hospitals are not liable to their patients for the torts or wrongful acts of their employees. But while our courts disclose great unanimity in declaring charitable hospitals immune against claims of their patients based on the negligence of their servants, they are by no means agreed as to the grounds of immunity. This court prefers to rest its decision on the principle that, since these charitable hospitals perform a quasi or sort of public function in ministering to the poor and sick without any pecuniary profit to themselves, the doctrine of respondeat superior, let the superior or master answer, should not be applied to them in favor of those receiving their charitable services. Since the hospital derives no profit from its work, and since it is founded for the sole purpose of conserving the health and life of all who may need its aid, and since it ministers to those who cannot pay as well as to those who can, thus acting as a good Samaritan, justice and sound public policy alike dictate that it should be exempt from the liability attaching to masters whose only aim is to engage in enterprises of profit or of self-interest. The patient who accepts the services of such an institution, if injured therein by the negligence of an employee, must be content to look for redress to such employee alone. And all the cases holding charitable hospitals immune that have spoken on the subject agree that the exemption from liability applies to pay as well as to free patients.

Death From Eating Poisonous Mushrooms Accounted Accidental

(United States Casualty Company vs. Griffis (Ind.), 114 N. E. R. 83)

The Supreme Court of Indiana affirms a judgment for $6,645 in favor of Mrs. Griffis, plaintiff, for the death, from eating mushrooms tainted with ptomain poison, of her husband, who was insured under an accident policy by the defendant company "against loss resulting directly and independently of any and all other causes from bodily injury effected solely through external, violent and accidental means," though the policy expressly exempted the company from liability for injury "resulting from or contributed to, directly or indirectly, wholly or partially, by disease." The court says that it quite agrees with the contention that the means must be accidental, and that a mere accidental result would not suffice under the language of this policy; but the court is of the opinion that the unintentional taking of the poisonous substance contained in what the insured supposed to be edible mushrooms constituted an accidental means which caused the death. The court is also of the opinion that, under the facts disclosed here, the ptomain poison did not constitute a disease within the meaning of the language of the policy exempting the company from liability for injuries caused by disease.

Society Proceedings

COMING MEETINGS

Idaho State Medical Association, Sandpoint, June 25-26.
Montana Medical Association, Kalispell, July 11-12.
Oregon State Medical Association, Portland, June 28-30.
Western Roentgen Society, Kansas City, Mo., July 20-21.

ASSOCIATION OF AMERICAN PHYSICIANS

Meeting held in Atlantic City, May 2-3, 1917

(Continued from page 1872)

Calcium and Magnesium in the Blood in Rickets and Tetany

DRS. JOHN HOWLAND and WILLIAM MCKIM MARRIOTT, Baltimore: In both classes of cases there is a tendency toward a low calcium content, lower in the severe cases than in the mild, the lowest being 7.5 mg., the normal is about 10 mg. There is a diminution of the calcium content in rickets. The relationship between tetany and rickets is close. In fourteen out of fifteen cases of tetany there were repeated convulsions, and when the convulsions occurred there were 6 mg. of calcium in the serum. It would seem, therefore, that calcium is therapeutically indicated in tetany, but it cannot be stated whether or not it is of real value. However, in six cases in which it was used it seemed to be of great value; no child had convulsions after its use.

DISCUSSION

DR. SAMUEL J. MELTZER, New York: It has been shown that in animals a reduction of calcium can be brought about by the use of oxalates; if magnesium is added, the animal becomes completely paralyzed. When calcium is given, the animal awakens quickly.

Case of "Wilson's Disease" with Postmortem Findings

DRS. C. P. HOWARD and C. E. ROYCE, Iowa City, Iowa: This patient denied that he used alcohol, and said that he had never had any infectious disease, but that he was liable to attacks of diarrhea. In 1916 he complained of pain in his

legs and some difficulty in walking. He had edema of the legs. For three or four weeks this symptom persisted. Four weeks after the onset, he had cramps in the legs, hands and feet, especially in the toes of the right foot. He became more ataxic and quite emotional. The fingers were flexed on the hands, the wrist flexed on the forearm, and the arms extended and held closely to the side. The thighs were flexed on the abdomen, the feet were extended, and the toes were flexed. There was no mechanical or electrical irritability at this or at subsequent examinations. The skin was harsh and dry. The hair was scanty. The abdomen was tympanitic. The urine and blood were normal. Careful and repeated examinations of the central nervous system revealed nothing unusual in the motor or sensory tracts. The spinal fluid was examined; no cells were found, and the Noguchi and Wassermann tests were negative. The calcium content was unusually high, being 13 mg. per hundred c.c. There was no dysphasia nor dysarthria. No organism could be found in the blood. The patient died apparently of a terminal infection, basal in character. When the abdomen was opened the liver was found to be nodular, studded with large white nodules, suggestive of adenocarcinoma or a tumor similar in nature. The case was similar to those described by Wilson in 1912. Since then there have been nine such cases reported in this country. The symptoms of a condition called pseudocirrhosis are identical with Wilson's syndrome. The pigment has been tested for silver and manganese, but no one has been able to determine the cause of the discoloration of the skin.

DISCUSSION

DR. J. RAMSEY HUNT, New York: I have some lesions in mind that are circumscribed and confined to the caudate, the lenticular nucleus and to the corpus striatum. The tremor resembles that of paralysis agitans, but there is also a tendency to clonic spasm and choreiform movements. Wilson emphasized the importance of this tremor. One week ago, in a study of juvenile paralysis agitans, I found that the lesion was situated in the corpora striata and limited to the larger motor cells. Paralysis agitans is a type of disease due to atrophic disturbances in the large motor cells; Huntington's chorea is a type of destruction of the smaller cells. The massive lesion in Wilson's disease is a combination of the destruction of the two systems.

DR. C. E. ROYCE, Iowa City, Iowa: The hilum at the base of the brain was not at all pathognomonic of Wilson's disease. So far as I know there has been no patient with pseudocirrhosis or Wilson's disease ever exposed to manganese. There are some evidences of a syndrome in which the manganese marked a somewhat similar type as the disease under consideration.

Use of Foreign Proteins

DR. J. L. MILLER, Chicago: The foreign proteins were given intravenously, except milk, which was given intramuscularly. In addition to the protein, we used collargol in the cases of iritis. During March and April we discharged fourteen patients who had had acute arthritis; the patients received one injection each day until three had been given. There was only one recurrence. We used typhoid vaccines. No beneficial results were obtained from the use of gonorrheal vaccines. In the subacute or chronic cases the results were less marked than in the acute cases. In eight or nine cases of pneumonia in which these injections were given, the reactions were quite violent. In a series of 200 cases in which over 500 injections were given, there has been no fatality. We have had more remarkable results with this treatment than with any other.

DISCUSSION

DR. E. E. IRONS, Chicago: In a discussion of the effects of foreign protein in disease, interest centers on two main topics: (1) the relation of the phenomena observed to those which occur in the natural recovery from disease, and (2) the clinical results which follow the use of foreign protein in disease.

1. While the reactions which we speak of as specific differ from those called nonspecific, we may conceive of both classes as dependent on physicochemical principles, differing only in the degree of the fineness of their adjustment. The findings of Hektoen indicate that in carefully controlled animals the introduction of one antigenic substance may cause the appearance not only of antibodies specific to the recently injected antigen, but also antibodies specific to another different antigen, in an animal previously sensitized to the latter antigen. The recognition of this interrelation of specific and nonspecific reactions is an important step in understanding the problems of the effects of foreign protein in infections, and of the effect of one infection on another in the human body.

2. To what extent do the results of our observations warrant the use of intravenous injections of foreign protein in infections, especially typhoid fever and arthritis? Published reports have led to a widespread employment of this procedure, especially in arthritis, often by those untrained and uncritical in judgment. In typhoid fever a number of favorable reports have appeared. On the basis of our observation and those of others, we have not felt justified in extending the use of this procedure in typhoid fever. In patients suffering from arthritis, striking amelioration of pain and swelling in the joints has followed the intravenous injection of bacterial and other foreign protein. There is always the danger that the routine use of a nonspecific remedy may lead to an incomplete and careless study of the patient. We must also take into consideration the other effects of the injection on the patient. There have been three deaths in one hospital within six months following the intravenous injection of bacterial protein. From the therapeutic point of view I believe we should warn against the indiscriminate use of these methods until they have been studied more thoroughly, and the dangers as well as the reputed advantages better defined.

DR. S. SOLIS COHEN, Philadelphia: I have used colloidal silver and gold and obtained satisfactory results in cases of profound sepsis and in toxemias of various origin, especially in streptococcus infections. In regard to the treatment of arthritis by intravenous injections, I should like to refer to the use of liquor formaldehydi; after the use of this agent there has been in almost every instance an immediate disappearance of pain. When the patient recovered, the recovery was prompt and continuous, and there were no relapses or violent reactions.

DR. MILTON H. FUSSELL, Philadelphia: I know of at least two deaths that have occurred in cases of typhoid fever treated in this way.

DR. J. L. MILLER, Chicago: We refuse to give the injections to patients when we think they cannot stand them. We first test the patient out with very small doses. I believe, however, that with proper precautions we are secure against bad results, but we should be careful in the selection of cases.

Renal Function in Acute Infections

DR. CHANNING FROTHINGHAM, JR., Boston: During the course of acute infections there is no serious injury to the kidneys, and it is better to use a high caloric diet.

DISCUSSION

DR. THEODORE C. JANEWAY, Baltimore: It is interesting to note the high index of urea in febrile and other acute diseases. I recall an instance of hyperthyroidism which showed quite regularly an extremely marked increase in the output of urea.

A Case of Primary Thrombophlebitis of the Hepatic Vein and a Case of Primary Sarcoma of the Epicardium

DR. NATHAN E. BRILL, New York: A woman was carried into the ward, December 4, moaning with pain. She stated that she had never been sick before. She was 24 years of age, married four months, and pregnant two. She had been suffering for four or five days with pain in the epigastrium and down the lateral aspects of the abdomen. The liver was enlarged 2 cm. below the free border of the ribs. The pain was intense, and the woman was unable to lie down. The blood count showed 21,000 white cells, with 80 per cent.

polymorphonuclears. On the following day the liver was found to be 4 cm. below the free border of the ribs. On the next day the liver was still larger, being 7 cm. below the free border of the ribs, and for the first time the spleen was felt. On the day following, the spleen was found to be 3 finger-breadths below the free border of the ribs, and the liver was at the crest of the ilium. The abdomen was enormously distended. An exploratory operation was finally decided on. About a liter of clear fluid was evacuated and the uterus was also evacuated. The liver was found to be down to the iliac crest. The spleen was 4 cm. below the free border of the ribs. The patient lived for three weeks after this time. The necropsy showed a liver considerably shrunken in size and a similar condition of the spleen. The abdominal viscera showed no infectious process. At the entrance of the hepatic vein into the vena cava for a distance of 0.5 cm. was a blood clot. This was traced along the hepatic vein, and showed soft clots connected with the periphery by a little tissue. The clot extended all over the branches of the hepatic vein. There was a primary thrombosis in the hepatic vein terminating at the vena cava. Only three cases of this kind have been reported. The woman died because of complete suppression of hepatic function.

The second case, primary sarcoma of the pericardium, occurred in a woman, aged 22, who came into the hospital in June with a frank attack of lobar pneumonia. There was an associated endocarditis with effusion. The patient left the hospital in July and returned in September, when a diagnosis of pericardial effusion was made. On the second day after admission, the pericardial sac was tapped and a small amount of blood-stained fluid obtained. This patient developed an adherent pericardium, dilatation of the heart and a large amount of effusion in the left sac. She lived until about the middle of January. At the necropsy, when the sternum was removed, the pericardial sac was found to be 20 by 24 by 14 cm. When the pericardium was incised, a large tumor mass was found and a small amount of brown-colored fluid The mass enveloped the entire heart, but the entrance of the veins was not occluded at all. On section the tumor showed a large number of spindle and round cells. The pathologist's report stated that the tumor was a sarcoma of the epicardium. There were no metastases. Only eight cases of sarcoma of the epicardium have been reported in the literature.

Localization of Syphilis on the Aorta

DR. OSCAR KLOTZ, Pittsburgh: In the majority of instances in which infection localizes on the tissues of the aorta, it is found to begin in the outermost layers and from here to attack the adventitia and media. The localization has been ascribed to distribution by the vasa vasorum. On the basis of the hematogenous distribution, it is not possible to account for the more frequent localization of infection on the ascending and transverse portions of the aorta. A study of the aorta and its lymphatic distribution demonstrated a greater number of lymph channels in given regions. This is particularly true for the first portion of the aorta. The prominence of these lymphatics and evidence as serving for routes of infection was seen in several cases of pneumonia. A similar correlation of the lymphatic system to the distribution of the infectious agent was seen in syphilis. The lymphatics in the aorta will follow the course of the vasa vasorum thus giving rise to a perivascular infiltration which is so prominent in syphilitic aortitis. The lymphatics appear to be more important structures than the small nutrient vessels for the distribution and localization of syphilis.

Pneumonia in Relation to Types of Pneumococcus and the Serum Treatment of Type 1 Cases

DRS. HENRY A. CHRISTIAN and H. L. ALEXANDER, Boston: This study includes 187 cases of typical bronchopneumonia, eleven of which were treated by means of serum. As a rule, there was a critical fall of the temperature within a few hours after the serum was given; frequently more than one dose was needed to reduce the temperature. Sometimes there was rise in temperature and a chill following the first dose. Serum sickness occurred in most cases one week after the treatment, but was never severe. There was no distrubance as a result of the serum treatment during convalescence beyond some itching and urticarial lesions. Of the treated patients, one died during the pneumonia, one died during convalescence, and two developed empyema. There was a reduction in the mortality from 42 per cent. in the untreated cases to 18 per cent. in the treated cases.

DISCUSSION

DR. THEODORE C. JANEWAY, Baltimore: I have made a comparison of the results in the white and colored races. Altogether there were of the white race, twelve cases with seven deaths; of the colored race, forty-six cases with eleven deaths. This shows a definitely lower mortality among the negroes. The reactions seem to have a definite relation to the amount of serum administered.

DR. M. H. FUSSELL, Philadelphia: Seven patients have been treated in my ward with no deaths. One patient had a very severe reaction after being given 60 c.c. of the serum, but recovered.

A Case of Ventricular Fibrillation with Recovery

DR. GEORGE CANBY ROBINSON, New York: It has been generally accepted that when the human ventricles pass into a state of fibrillation, death is an almost immediate and an invariable consequence. In the case reported, three attacks of syncope occurred. These lasted about four minutes each. During one of these attacks, when the patient ceased to breathe, and when no heart sounds were audible, an electrocardiogram characteristic of ventricular fibrillation was obtained. The patient lived thirty hours after this attack, during which time numerous electrocardiograms were obtained. The case is the first example of recovery from a well-established ventricular fibrillation that has been observed.

Atrophy of the Large Motor Cells of the Corpus Striatum in the Presenile Type of Paralysis Agitans

DR. J. RAMSEY HUNT, New York: The clinical types of paralysis agitans are the presenile and senile types and a rare juvenile form; also a paralysis agitans without tremor, and a rare tremor type of the disease in which rigidity is absent. In addition, various irregular and symptomatic forms are recognized. In the juvenile type there are certain pathologic changes consisting of atrophy and diminution in the number of the motor cells of the corpus striatum. The suggestion is made that paralysis agitans beginning in early life belongs to the group of motor system diseases and is dependent on a primary atrophy of the efferent projection system of the corpus striatum. The atrophic changes are limited to the motor cells of the globus pallidus, and is especially marked in the large cells of similar type in the caudate nucleus and putamen. The cells of the globus pallidus type, therefore, represent a well defined cellular system, the globus pallidus mechanism, which in my opinion is the essential motor system of the corpus striatum. According to this conception, paralysis agitans is a primary systemic disease, occurring in the course of the striospinal mechanism, while spastic paralysis (primary lateral sclerosis) is a systemic disease of the corticospinal mechanism. The smaller ganglion cells of the caudate nucleus and putamen are not affected. The motor cells of the globus pallidus proper show only slight alterations. Some of these cells appeared slightly reduced in size and presented a somewhat rounded or angular appearanee, but these changes are not well defined and the essential lesion is atrophy of the giant motor cells of the caudate and putamen. According to this conception, the corpus striatum is a motor mechanism for the control of automatic and associated movements operating through the extrapyramidal motor tracts. The pallidal system is the motor system proper and terminates in relation to important ganglions in the hypothalmic region, and through these exerts a controlling influence by way of the extrapyramidal system on automatic and associated movements. The peculiar rigidity of paralysis agitans is dependent on a hypertonicity of the musculature which most authorities agree is of central origin.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

June, LXXV, No. 6

1 Metabolism of Mother and Offspring Before and After Parturition. J. R. Murlin, New York.—p. 913.
2 Antenatal Pathology. E. A. Schumann, Philadelphia.—p 953.
3 *Hydatidiform Mole; Analysis of Five Hundred Cases. P. Findley, Omaha.—p. 968.
4 Treatment of Septic Incomplete Abortion. H. N. Vineberg and S. Wiener, New York.—p. 975.
5 Nitrous Oxid Gas as Analgesic in One Hundred and Thirty-Five Cases of Labor. G. H. Ryder, New York.—p. 981.
6 *Case of Puerperal Gangrene of Leg. W. H. W. Knipe, New York. —p. 988.
7 Report of Very Large Fetus. (15 1 1/16 Pounds). G. L. Brodhead, New York.—p. 993.
8 Hyperplasia of Endometrium. E. Novak, Baltimore.—p. 996.
9 Resident Physician in His Relation to Operative Gynecology. J. M. Fisher, Philadelphia.—p. 1001.

3. **Hydatidiform Mole.**—An analysis made by Findley of 500 reported cases shows that there is nothing significant in age, the condition having occurred at all ages from 13 to 55. In the 500 cases there were: twin pregnancies in five; repeated molar pregnancies in seven; normal pregnancies following moles in twenty-five; partial moles with fetus in three; partial mole with living normal child in three. Repeated molar pregnancy has occurred from two to eighteen times. The birth of one or more moles does not preclude subsequent normal pregnancies. The birth of moles occurs with about equal frequency in the second and third trimesters of pregnancy, and has been known to occur as late as the seventeenth month of gestation. Chorio-epithelioma malignum developed in 157 cases, or 31.4 per cent. of the 500 cases of mole formation. Of the 265 benign moles there were recoveries in 237 and deaths in twenty-eight, a mortality of 10.5 per cent., while of ninety-nine moles, which later became malignant, there were forty-five recoveries and fifty-four deaths, a mortality of 54.5 per cent. The following symptoms are tabulated: Bleeding in 290 (66 per cent.); pain in 42 (9.5 per cent.); albuminuria in 13 (38 per cent.); vomiting in 60 (13.5 per cent.); fever not given; dyspnea in 5; hemophysis in 3; toxemia in 1; headache in 5; eclampsia in 9. Among the malignant cases there were vaginal metastases in 25; pulmonary metastases in 21; cerebral metastases in 4. In 386 cases there was spontaneous delivery in 167 (43.2 per cent.) and operative delivery in 219.

6. **Puerperal Gangrene of Leg.**—This was a case of gangrene of the right foot and leg following a septic abortion due to a mixed infection of *B. aerogenes-capsulatus*, streptococcus and a diplococcus, starting as a thrombophlebitis of the right broad ligament and involving the inferior vena cava, both common iliac veins, both external iliac veins and the femoral vein on the right side, while the arteries are in no way involved. Associated with this condition was a pyemia, bronchopneumonia, abscess of the lung and general peritonitis. Death terminated the case.

Boston Medical and Surgical Journal

May 31, CLXXVI, No. 22

10 Drug Users in Court. V. V. Anderson, Boston.—p. 755.
11 Shiftling, Charlatan and Vagabond; Who They Are and How They Arise. J. V. Haberman, New York.—p. 757.
12 End Results of Treatment of Fracture of Elbow. H. Neuhof and H. F. Wolf, New York.—p. 759.
13 Mucosa of Rectum and Sigmoid Colon as Focus of Infection. H. W. Soper, St. Louis.—p. 766.
14 Case of Melanotic Sarcoma Arising in Eye, with Metastases. L. Adams, Bangor, Me.—p. 768.
15 Case of Systemic Oidiomycosis with Manifestations in Central Nervous System. F. J. Farnell and S. Starr, Providence, R. I. —p. 771.
16 Comparative Statistics on Physical Examinations of Pupils of Boston Public Schools from Dec. 1, 1915, to April 1, 1917. W. H. Devine, Boston.—p. 773.
17 Radium in Treatment of Cutaneous Epithelioma and Keratosis Senilis. F. S. Burns and J. H. Blaisdell, Boston.—p. 774.

June 7, No. 23

18 Three Types of Tuberculosis. M. E. Lapham, Highlands, N. C. —p. 795.
19 Defectives in Our Prisons. A. W. Stearns, Boston.—p. 801.
20 Treatment of Some of Postural Defects and Habit Motions Common Among Blind. L. D. Swinerton, Watertown.—p. 803.
21 Case of Iritis and Optic Neuritis Following Tonsillitis. I. Sobotky, Boston.—p. 806.
22 *Nature's Drainage of Pelvic Abscess. Evolution of Adventitious Drainage Tube. H. Packard, Boston.—p. 807.
23 Case of Tubal Pregnancy. E. H. Mackay, Clinton.—p. 808.
24 Case of Amebic Abscess of Liver in Guardsman Recently Returned from Mexican Border. L. Adams, Bangor.—p. 808.

22. **Nature's Drainage of Pelvic Abscess.**—A patient recently operated on by Packard for the radical cure of chronic pelvic abscess presented a surprising and wholly unique mechanism for drainage. Briefly, a distinct and perfectly formed tube standing out clearly, and practically free from adhesion with any of the adjacent viscera, extended from the depths of the pelvis up along the left side to an opening in the abdominal wall, a little to the left of the median line and about 2 inches below the umbilicus. It had a slight mesenteric like attachment to the pelvic parietes, easily separated by finger dissection and snipping scissors, and was covered with a smooth peritoneum like covering.

Bulletin of Johns Hopkins Hospital, Baltimore

June, XXVIII, No. 316

25 *The D:N Ratio in Diabetes Mellitus. H. O. Mosenthal and D. S. Lewis, Baltimore.—p. 187.
26 Nature of Resistance to Tuberculosis. A. K. Krause, Baltimore. —p. 191.
27 *Amino-Acid Nitrogen of Blood in Normal and Complicated Pregnancy and in New-Born Infant. A. Morse, New Haven, Conn. —p. 199.
28 Etymology, Popular and Scientific, of Terms for Kidney, in Various Languages. D. I. Macht, Baltimore.—p. 204.

25. **D: N Ratio in Diabetes Mellitus.**—The data of a case of diabetes mellitus demonstrating a maximal dextrose-nitrogen ratio of 3.65:1 are presented by Mosenthal and Lewis. They state that among the principal causes for apparently spontaneous changes in the D:N ratios present in some cases of diabetes mellitus are: (1) the inconstant renal threshold to the blood sugar, and (2) the variable heights to which the blood sugar rises after meals, even though these are not appreciably modified from day to day.

27. **Amino-Acid Nitrogen of Blood in Pregnancy and in New-Born Infant.**—In normal women examined by Morse the amino-acid nitrogen varied between 8 and 14 mg. per 100 c.c. of blood; and the same range of variations was encountered during pregnancy. In other words, the requirements of the fetus cause no increase of the substances in the maternal blood out of which protein is constructed. Generally, normal values were found in preeclamptic toxemia and eclampsia, though exceptionally an increase in the amino-acids occurred during convalescence. Nephritic toxemia was accompanied by a normal quantity of amino-acid nitrogen in the blood. An excessive quantity of amino-acids occurred in cases of obscure toxemia, possibly related to acute yellow atrophy of the liver. During labor normal values were found; at its conclusion the extremes encountered were 8.1 and 13.9 mg. In fetal blood the amino-acid nitrogen varied between 10 and 15.8 mg. per 100 c.c. of blood. The passage of amino-acids from mother to fetus requires the assumption of "absorption" properties on the part of the placenta; for, though the difference between the concentration of amino-acids in the two circulations is small, it is in favor of the fetus in 70 per cent. of the cases; and the higher level in that organism prevents the acceptance of simple diffusion as the explanation for the placental exchange. Morse believes that the "absorption" property of the placenta probably protects the fetus against loss of material intended for the construction of protein.

Georgia Medical Association Journal, Augusta

May, VII, No. 1

29 Vital Statistics. E. R. Park, LaGrange.—p. 1.
30 Public Health Work in First Sanitary District and Some Pathologic Conditions among Children. C. C. Whittle, Tifton.—p. 4.
31 Education Cornerstone of Sanitation. M. M. McCord, Rome. —p. 7.

32 Laboratory as Aid to Public Health Work. L. T. Patillo, Atlanta. —p. 9.
33 What Local Health Officer Should Know About Water Supply. R. C. Werner, Atlanta.—p. 11.

Iowa State Medical Society Journal, Des Moines

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34 Remote and Systemic Effects of Focal Infections. E. T. Edgerly, Ottumwa.—p. 165.
35 Sacro-Iliac Articulation. J. N. Warren, Sioux City.—p. 168.
36 Id. H. J. Prentiss, Iowa City.—p. 172.
37 Syphilis of Central Nervous System. J. F. Auner, Des Moines. —p. 174.
38 Amyotrophic Lateral Sclerosis. T. B. Throckmorton, Des Moines. —p. 177.
39 Reed's Bacillus Epilepticus. J. B. Rogers, Independence.—p. 180.
40 Standardization, Preparation of Patient, Operation and Postoperative Treatment for Lessening Sepsis and Shock in Tonsillectomy. H. G. Langworthy, Dubuque.—p. 181.
41 Acute Abdominal Crisis. K. L. Johnston and E. D. McClean, Oskaloosa.—p. 184.

Journal of Experimental Medicine, Baltimore

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42 Immunologic Studies on Pure Cultures of Various Spirochetes. H. Noguchi and S. Akatsu, New York.—p. 765.
43 *Bacteriology of Acute Anterior Poliomyelitis. J. A. Kolmer, C. P. Brown and A. M. Freese, Philadelphia.—p. 789.
44 *Henle's Reaction of Chromaffin Cells in Suprarenals and Microscopic Test for Epinephrin. T. Ogata and A. Ogata, Tokyo, Japan.—p. 807.
45 *Studies on Bacillus Welchii with Special Reference to Gas Gangrene. J. P. Simonds, Belgium.—p. 819.
46 Equilibria in Precipitin Reactions. Coexistence of Single Free Antigen and Its Antibody in Same Serum. S. Bayne-Jones. New York.—p. 837.
47 *Focal Pulmonary Tuberculosis of Children and Adults. E. L. Opie, St. Louis.—p. 855.
48 Classification of Nonhemolytic Streptococci. R. A. Kinsella and H. F. Swift, New York.—p. 877.

43. **Bacteriology of Poliomyelitis.**—Four different varieties of easily cultivated micro-organisms have been cultured by the authors from the cerebrospinal fluid and tissues of cases of acute anterior poliomyelitis, namely, a streptococcus, a diplococcus, diphtheroids and gram-negative bacilli. It is not contended that they were all inherent in the tissues. The streptococci grew both aerobically and anaerobically; under anaerobic conditions growth was slow. They were not found in the anaerobic cultures of 106 cerebrospinal fluids; they were found in one of twenty anaerobic blood cultures and frequently in the cerebrum, cerebellum, pons and medulla, cord, tonsils, lungs, liver, kidneys, spleen, pancreas, thymus gland, suprarenal glands and mesenteric glands of fatal cases. The diplococci are gram-positive and, transplanted to solid media, yield luxuriant growths and a staphylococcus grouping. They grew aerobically and anaerobically, but more slowly under the latter condition, and the cocci became smaller and more rounded. Diplococci were found in the anaerobic cultures of forty-eight of 106 cerebrospinal fluids; also in the cerebrum, cerebellum, pons and medulla, cord, tonsils, lungs, liver, kidneys, spleen, pancreas and mesenteric glands of fatal cases. The filtrates of emulsions of tissues containing streptococci and diplococci passed through fine Kitasato and Pasteur-Chamberland filters were sterile unless large amounts of filtrates were collected. Intracranial, intravenous and intraperitoneal injection of these easily cultivated streptococci, diplococci, diphtheroids and gram-negative bacilli failed to produce paralysis in rabbits or monkeys. With two exceptions all the cultures were transplants from the original anaerobic ascites-broth-kidney cultures of cerebrospinal fluid and various tissues. Arthritis and meningitis were produced by the streptococci, but there were neither clinical nor histologic evidences of true poliomyelitis.

44. **Henle's Reaction of Suprarenal Chromaffin Cells.**—The Ogatas believe that they have established the fact that the chrome reaction as well as the silver and osmiun reactions are merely reductions by epinephrin. In their opinion the naming of the cells giving a positive reaction should not be based on the reaction (that is, chromaffin cells), but on the presence of epinephrin itself. Biedl's terms, suprarenal cell, suprarenal organ, suprarenal body, suprarenal system and also Bonnamour's term, epinephrin producing cells, are appropriate in this respect. The authors propose the names epinephrin cell, epinephrin tissue, epinephrin system, thereby indicating the presence of epinephrin.

45. **Bacillus Welchii and Gas Gangrene.**—Spores of the *Bacillus welchii* group of bacteria were found on 100 per cent. of the uniforms of Belgian soldiers who had come directly from the trenches, and in the meshes of all the samples examined of the new cloth from which the uniforms were made. In fifteen out of twenty fresh war wounds, members of this group of bacteria were found. Of the fifteen patients, only three later developed gas gangrene. Once the spores of *Bacillus welchii* have been carried into a wound the deep lying lacerated muscle tissue appears to be the most important factor in the onset of gas gangrene. *Bacillus welchii* is able to grow and produce gas in broth containing up to 40 per cent. saccharose; some strains in 50 per cent.; but none of those examined were able to grow when the concentration of the sugar reached 60 per cent.

47. **Focal Pulmonary Tuberculosis.**—Evidence of tuberculous infection was found by Opie in the lungs of fifty adults. He says that approximately one-half of all adults have encapsulated lesions of the lungs or bronchial lymphatic nodes, whereas in one-third pulmonary and lymphatic lesions are firmly calcified and completely healed. Tuberculous pulmonary lesions of adults who have died of diseases other than tuberculosis are of two types: (1) apical tuberculosis similar to the usual type of fatal phthisis and unaccompanied by caseation of the regional lymphatic nodes; (2) focal tuberculosis not more commonly situated in the apices of the lungs than elsewhere and accompanied by caseation (or calcification) of the adjacent lymphatic nodes. Focal pulmonary tuberculosis of adults is identical with the tuberculosis of childhood. It occurs in at least 92 per cent. of all adults. It may be acquired between the ages of 2 and 10 years but in more than half of all individuals (in this city) makes its appearance between the ages of 10 and 18 years. Tuberculosis of children does not select the apices of the lungs, is accompanied by massive tuberculosis of regional lymphatic nodes, and exhibits the characters of tuberculosis in a freshly infected animal, whereas tuberculosis which occurs in the pulmonary apices of adults has the characters of a second infection. Almost all human beings are spontaneously "vaccinated" with tuberculosis before they reach adult life.

Journal of Infectious Diseases, Chicago

June XX, No. 6

49 Anaphylatoxin and Anaphylaxis. Peptone Anaphylatoxin. F. G. Novy, P. H. DeKruif and F. O. Novy, Ann Arbor, Mich.—p. 657.
50 Primary Toxicity of Normal Serum. P. H. DeKruif, Ann Arbor, Mich.—p. 717.
51 Specific Anaphylactic Shock. F. G. Novy and P. H. DeKruif, Ann Arbor, Mich.—p. 776.
52 Anaphylatoxin and Amino Nitrogen. P. H. DeKruif and W. M. German, Ann Arbor, Mich.—p. 833.

Journal of Medical Research, Boston

May, XXXVI, No. 2

53 *Arthritis Deformans as Infectious Disease. P. W. Nathan, New York.—p. 187.
54 *Formation of Giant Cells in Tuberculosis. J. H. Warren, Cleveland.—p. 225.
55 *Sensitization of Patients with Bronchial Asthma to Proteins in Animal, Fruit, and Vegetable Foods. I. C. Walker, Boston.—p. 231.
56 *Sensitization of Patients with Bronchial Asthma to Various Pollens. I. C. Walker, Boston.—p. 237.
57 *Complement Fixation and Precipitin Reactions with Serum of Bronchial Asthmatics Who Are Sensitive to Proteins of Wheat, Horse Dandruff, Cat Hair and Bacteria. I. C. Walker, Boston. —p. 243.
58 Progressive Muscular Ossification (Progressive Ossifying Myositis) —Progressive Anomaly of Osteogenesis. E. L. Opie, St. Louis. —p. 267.
59 Hypertrophic Chondrodystrophy in Infancy and Adolescence—Progressive Anomaly of Osteogenesis. E. L. Opie and N. Allison, St. Louis.—p. 277.
60 *Part Staphylococcus Pyogenes Aureus and Albus May Play in Cause of Bronchial Asthma. I. C. Walker and J. Adkinson, Boston.—p. 295.
61 Neuroblastoma; Report of Case. E. P. Lehman, St. Louis.—p. 309.

53. **Arthritis Deformans as Infectious Disease.**—Evidence is submitted by Nathan to prove that all the various forms

of polyarthritis may be caused by infections. The pathologic lesions correspond exactly with those of known infections and the clinical phenomena can all be ascribed to differences in the location and virulence of the bacteria, the mechanical conditions and the presence or absence of central or peripheral nerve involvement. In at least the majority of cases the cause of the chronic, nonsuppurative joint diseases is an infection. The presence or absence of symptoms of general infection, the metastases in other organs besides the joints, the recurrences and the location of the primary focus must be considered as a problem separate from the articular disease. Though it is not unlikely that a focus in a tooth is sometimes, and one in the throat is often, the point of entry for bacteria, it should be remembered that once the microorganism has entered the blood its connection with the portal of entry ceases. For this reason, though the removal of the affected teeth or tonsils will, if these are really the site of the original focus (which is not by any means always certain even when they are abnormal) prevent reinfection or recurrences, such procedures have absolutely no influence on the joint condition as it already exists. Moreover, it must be remembered that a focus in the joint structures, like a focus anywhere else, besides causing local changes, may be and no doubt often is a source of general infection and metastases.

54. **Formation of Giant Cells in Tuberculosis.**—Warren's findings confirm those of other workers, viz., that the so-called epithelioid and endothelioid cells are really of reticular tissue origin and also that the giant cells in tuberculosis are a result of the fusion of these cells. Since reticular tissue is found throughout the body, it would seem entirely possible that the cellular reaction in tuberculosis is entirely local, and due to a stimulation of these reticular cells.

55. **Sensitization of Asthma Patients.**—In one series of patients with bronchial asthma studied by Walker only an occasional case was found to be sensitized to the proteins derived from the staple foods of animal, fruit and vegetable kingdoms.

56. **Sensitization of Patients with Asthma to Various Pollens.**—In determining the cause of seasonal asthma, Walker advises that the patient be tested with the pollen of all of the common plants rather than with one plant from each family; the whole pollen should be used in these tests rather than a dilution of the pollen. Occasionally it is advisable to test with the leaves of trees and other plants since patients may give a positive reaction with the leaves and not with the pollen of that same plant.

57. **Complement Fixation and Precipitin Reactions in Asthma.**—In this study of bronchial asthma by Walker complement fixation and precipitin reactions, using the protein to which the patient is sensitive as an antigen, have been of no value in diagnosis, prognosis or treatment. The cutaneous reaction, however, has proved to be of great value in prognosis and treatment and it seems the only practical and safe method at the present time for the diagnosis of the cause of bronchial asthma.

60. **Rôle of Staphylococcus in Bronchial Asthma.**—In the experience of Walker and Adkinson the cutaneous reaction has proved to be the safest and best test for determining the bacterial cause of bronchial asthma. When cutaneous reactions have failed, serum agglutination tests have been of value in a few cases in determining *S. pyogenes-aureus* as the cause of bronchial asthma. This test is of no value with *S. pyogenes-albus*, since no serum agglutinated this organism. There is no fixed relationship between the cutaneous reaction, serum agglutination tests and the isolation of *S. pyogenes-aureus* and albus from the sputum and nasal secretions of patients with bronchial asthma. Vaccine treatments with *S. pyogenes-aureus* and albus do not increase the titer of a serum which agglutinates these organisms; in fact, agglutination tests become negative during treatment with vaccines from them.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, IX, No. 8

62 *Pharmacology of Ureter. Action of Nitrates and Nitrites. D. I. Macht, Baltimore.—p. 427.

63 Action of Epinephrin and Ergotoxin on Single, Physiologically Isolated Cells. R. A. Spaeth and H. G. Barbour, New Haven, Conn.—p. 431.

64 *Effect of Alcohol on Respiration and Gaseous Metabolism in Man. H. L. Higgins, Boston.—p. 441.

65 *Comparative Effects of Opium Alkaloids Individually and in Combination with Each Other on Gallbladder. D. I. Macht, Baltimore.—p. 473.

66 Vascular Reactions in Experimental Acute Tartrate Nephritis. H. T. Karsner, Cleveland.—p. 483.

62. **Action of Nitrates and Nitrites on Ureter.**—Experiments made by Macht show that the effects of the nitrate and the nitrite ions on the ureter are very different. The nitrate effect is slightly stimulating and is not toxic; the nitrite effect, on the other hand, is rapidly toxic and paralyzes the ureteral preparations without completely relaxing them. The ureter is killed and remains in a moderately contracted condition. Such an effect is obviously not a desirable one, and if the same conditions hold good clinically the value of nitrites in counteracting ureteral spasms is nil. A search through clinical literature by the author has failed to reveal any cases of renal colic successfully treated by the use of nitrites.

64. **Effect of Alcohol on Respiration.**—Experiments were made by Higgins on men, reclining and breakfastless, as to the effect of 30 and 45 c.c. of ethyl alcohol (suitably diluted but not as alcoholic beverages) on the respiration and the gaseous metabolism. Alcohol sometimes acted to increase the sensitivity of the respiratory center, as shown by a drop in the alveolar carbon dioxid tension; sometimes alcohol was without action on the respiratory center. Alcohol did not have any bronchoconstrictor action and seldom any bronchodilator action, as shown from determination of the dead space of breathing. The respiration rate was not appreciably affected by alcohol nor was the type of respiration changed, unless there was restlessness. The heat production, as indicated by the oxygen consumption, was ordinarily unchanged by alcohol; in about one fifth of the experiments there was a rise in heat production of from 5 to 7 per cent. There are indications in about 45 per cent. of Higgins' experiments of a relative acceleration in the pulse rate after taking alcohol as compared to taking the control solution. In 55 per cent. of the experiments this relative acceleration did not occur. Study of respiratory quotients obtained indicate (1) that 45 c.c. of alcohol is not burned at a faster rate than 30 c.c.; (2) that probably 20 to 40 per cent. of the total metabolism is due to alcohol; and (3) that if the rate of combustion continues at the same rate as in the first two or three hours, it requires eight hours before all of the 30 c.c. alcohol and twelve hours before all of the 45 c.c. alcohol is completely burned. Alcohol diminished the volume of air breathed per minute in a majority of the cases; this was due to diminished carbon dioxid production.

65. **Effects of Opium Alkaloids on Gallbladder.**—Macht summarizes his findings as follows: Morphin, codein and thebain have either no appreciable effect on the tonus and contractions of the gallbladder, or tend to stimulate them. Papaverin, narcotin and narcein tend to inhibit the contractions of the gallbladder and to decrease its tonus. In a combination of total opium alkaloids the benzylisoquinolin effect on the smooth muscle predominates. Atropin, in small or therapeutic doses, does not relax the tonus of the gallbladder. These observations having been made, on the one hand, on the isolated gallbladder, and on the other, having been corroborated on the gallbladder in situ, seem to point to the superiority of papaverin or a combination of total opium alkaloids over morphin in the treatment of biliary spasm or colic.

Medical Record, New York

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67 Diagnostic and Prognostic Significance of Spinal Fluid Findings in Syphilis. J. A. Fordyce, New York.—p. 927.

68 Place of Radium in Treatment of Cancer. R. Abbe, New York.—p. 931.

69 Therapy of Pellagra. G. M. Niles, Atlanta, Ga.—p. 932.

70 Physician According to Francois Rabelais. D. W. Montgomery, San Francisco.—p. 936.

71 Practical Consideration and Treatment of Poor Man's Acute Gonorrhea. W. R. Jones, Seattle.—p. 939.

72 Dementia Praecox. J. R. Ernst, Peoria, Ill.—p. 942.
73 Chronic Dacryocystitis and Its Treatment. E. A. Pond, Brooklyn. —p. 944.

Michigan State Medical Society Journal, Grand Rapids

June, XVI, No. 6

74 Circumscribed Cystic Meningitis; Report of Three Cases. H. N. Torrey and L. N. Fleming, Detroit.—p. 259.
75 *Incidence of Goiter Among Four Hundred and Twenty-Five Women at Newberry State Hospital. M. P. Kemp, Newberry. —p. 262.
76 *Epididymotomy. H. W. Plaggemeyer, Detroit.—p. 266.
77 Use of Sulphids in Treatment of Mercury Poisoning. M. L. Holm, Lansing.—p. 270.
78 Gastric Ulcer Associated with Gastric Crises of Tabes Dorsalis. C. W. Hitchcock, Detroit.—p. 271.
79 Two Patients Showing Abnormalities of Conduct Associated with Psychoneurotic Disorders. A. M. Barrett, Ann Arbor.—p. 273.
80 Case of Sarcoma of Spinal Cord. C. L. Washburne, Ann Arbor. —p. 276.
81 *Difficulty of Demonstrating Spirochetes in Syphilitic Placentae. R. A. Bartholomew, Ann Arbor.—p. 279.
82 Cataract Deliriums. Report of Cases Occurring in Ophthalmologic Clinic of University of Michigan Between Years 1904 and 1917. M. E. Brownell, Ann Arbor.—p. 282.
83 Case of Balance Ptosis. W. S. Gonne, Ann Arbor.—p. 286.
84 Uterine Fibromyomas Complicating Pregnancy; Report of Case. L. L. Bottsford, Ann Arbor.—p. 288.

75. **Goiter Among Insane.**—The patients examined by Kemp were all resident at the Newberry State Hospital at the time, but came from various parts of the Upper Peninsula, therefore, all the cases were of the endemic type. Twenty-eight per cent. of 425 women patients had goiter. At least 5.8 per cent. developed goiter since coming to the hospital. Twenty-one per cent. of women admitted during a six year period had goiter. Enlargement of the gland was not always symmetrical. The right lobe more frequently showed enlargement and was often the first part affected. Many cases reach a stationary point from which no further development takes place. All cases were of the cystic variety, and there was no transition to the exophthalmic type in any instance. No physical discomfort was apparent which was due to enlarged thyroid gland. Radical cure was affected in a few cases by surgical treatment.

76. **Epididymotomy.**—Plaggemeyer suggests the following technic: (1) incision on the ventral surface of the scrotum down to the vaginalis; (2) eversion of sac in toto as for a Willys-Andrews operation; (3) longitudinal incision the whole length of the tunica, with a right and left oblique deflection at the lower end an inch long to form a Y. This permits an eversion of the sac without incarcerating a pus sac if present at the lower end, and in cases in which pus is present the small triangle of vaginalis left at the lower end is always plastically bound down, and will not remain as a superfluous flap; (4) incision of abscess or abscesses, if present in the glonus minor or body, with a single longitudinal incision along the line of the epididymis to relieve tension; (5) anchorage of the everted vaginalis with a mattress suture of No. 2 chromic gut, placed loosely behind the cord, high up, to prevent recurrence of hydrocele, which it will do in a very large majority of cases; (6) counter puncture through the most dependent portion of scrotal sac and drainage of cavity through a small rubber tube for forty-eight hours; (7) irrigation with hot normal saline; (8) replacement of testicle, and complete closure of upper wound with interrupted sutures of silkworm gut. This technic is said to prevent the recurrence of hydrocele, free tension, and at the same time takes care of the gross pus formation. It has been practiced by Plaggemeyer in twenty-two cases with entirely satisfactory results in each case, and with no untoward sequellae of any sort.

81. **Spirochetes in Syphilitic Placentae.**—Bartholomew examined the placenta for spirochetes in fifteen cases in which syphilis was diagnosed either by the histologic appearance of the placenta or by the clinical evidences. Although the spirochetes were readily demonstrated in the controls, in no case could they be found in suspected cord or placental tissue on repeated examinations. In two of the cases the fetal liver was found to contain numerous organisms, easily demonstrated. In view of these results it would seem to be futile to attempt to diagnose syphilis by the demonstration of spirochetes in the placenta by the Levaditi method. The examination of the fetal liver in a suspected case, coming to necropsy, offers a much greater chance of success, and should be made use of as a practical method.

Military Surgeon, Washington, D. C.

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85 Carrel's Method of Wound Sterilization. W. H. Arthur.—p. 489.
86 Recent Developments in Camp Sanitation. W. F. Lewis and R. B. Miller.—p. 499.
87 Surgeon and Military Preparedness. L. A. LaGarde.—p. 511.
88 Standardization of Food Inspection. W. M. Garton.—p. 514.
89 Rations for Boys' Military Training Camps. W. E. Fitch.—p 518.
90 Organization of French Sanitary Service. J. R. Church.—p. 531.

Missouri State Medical Association Journal, St. Louis

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91 Army as Life Vocation for Medical Men. T. U. Raymond, St. Louis.—p. 189.
92 Intestinal Stasis; Anatomy. A. G. Pohlman, St. Louis.—p. 192.
93 Roentgen Ray in Intestinal Stasis. E. C. Ernst, St. Louis.—p. 194.
94 Influence of Intestinal Stasis on Nervous System. M. W. Hoge, St. Louis.—p. 199.
95 Drugs in Treatment of Intestinal Stasis. E. P. Buddy, St. Louis. —p. 200.
96 Intestinal Stasis; Surgery. F. Reder, St. Louis.—p. 202.
97 Proctosigmoidoscope in Diagnosis and Treatment of Intestinal Stasis. H. W. Soper, St. Louis.—p. 205.
98 Treatment of Intestinal Stasis by Means of Physical Therapy. F. W. Ewerhardt, St. Louis.—p. 205.

Modern Hospital, St. Louis

May, VIII, No. 5

99 Urban Community Plan for Health and Medical Service. D. B. Armstrong and J. H. Berkowitz, New York.—p. 309.
100 New Children's Building of Tuberculosis League of Pittsburgh. W. C. White, A. E. Stewart and P. F. Shuey, Pittsburgh.—p. 312.
101 Ice Cream; Its Composition, Manufacture and Value. J. P. Street, New Haven, Conn.—p. 317.
102 Roentgen Ray Department of Cook County Hospital. E. S. Blaine, Chicago.—p. 321.
103 German Red Cross Hospital Train. C. E. Wright, New York.—p. 328.
104 Tent Hospital for Paralyzed Children. S. W. Boorstein, New York.—p. 330.
105 Oklahoma Hospital, Tulsa, Okla. F. S. Clinton, Tulsa, Okla.—p. 333.
106 Immanuel Deaconess Surgical Hospital, Omaha. O. Z. Cervin, Rock Island, Ill.—p. 336.
107 Standardization of Hospitals. J. A. Hornsby, Chicago.—p. 338.

New Jersey Medical Society Journal, Orange

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108 Cholecystectomy vs. Cholecystostomy (Technic and Complications); Treatment of Gastric and Duodenal Ulcers; Relationship of Thyroid to Exophthalmic Goiter. G. W. Crile, Cleveland.—p. 177.
109 Renal Infection. J. B. Squier, New York.—p. 182.
110 Antero-Policmyelitis; Review of Epidemic in Trenton. W. W. Stevenson, Trenton.—p. 186.
111 Plea for More Careful Practice of Dermatology. W. S. De Vausney, Newark.—p. 191.
112 Jejunostomy. E. Z. Hawkes, Newark.—p. 193.

New York Medical Journal

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113 Systematized Boarding Out vs. Institutional Care for Infants and Young Children. H. D. Chapin, New York.—p. 1009.
114 Gonorrheal Salpingitis. P. B. Bland, Philadelphia.—p. 1012.
115 Reduction of Blood Pressure by Removal of Suprarenal Gland. A. MacFarlane, Albany.—p. 1016.
116 Allergy and Vaccines in Prophylaxis and Treatment. A. K. Detwiler, Omaha.—p. 1020.
117 Clinical Survey of Acute Pulmonary Affections of 1916. S. Neuhof and B. Davidson, New York.—p. 1022.
118 Analysis of Series of Typhoid Cases. S. Steiner and J. W. Brandeis, New York.—p. 1027.
119 Technical Skill vs. Force in Management of Morphinism. C. B. Pearson, Arlington, Md.—p. 1029.
120 Two Cases of Late Congenital Syphilis. H. Apfel, New York.—p. 1032.
121 Diseases of Gallbladder and Biliary Tracts. M. E. Blahd, Cleveland.—p. 1033.

Oklahoma State Medical Association Journal, Muskogee

May, X, No. 5

122 Mucous Colitis. E. J. Reichley, Helena.—p. 183.
123 The Nurse. O. C. Klass, Muskogee.—p. 186.
124 Thrombophlebitis. P. P. Nesbitt, Muskogee.—p. 191.

125 Fallacy of Fumigation. Abuse of Tincture of Iodin. Alcohol Not an Antidote to Phenol. C. W. Heitzman, Muskogee.—p. 194.
126 Stricture of Bowel. A. A. Will, Oklahoma City.—p. 197.
127 Bone Work Under Local Anesthesia. W. W. Jackson, Vinita.—p. 198.

Ophthalmic Record, Chicago

May, XXVI, No. 5

128 Conjunctivitis Tularensis (Squirrel-Plague Conjunctivitis); Report of Case. F. W. Lamb, Cincinnati.—p. 221.
129 Eye Signs and Symptoms of Mongolian Idiocy. C. A. Wood, Chicago.—p. 226.
130 Relation of Ophthalmologist to Military Surgery. S. Walker, Jr., —p. 229.
131 Report of Two Clinical Cases of Sympathetic Ophthalmia Shown Before Chicago Ophthalmologic Society. C. G. Darling, Chicago. —p. 233.
132 Ocular Therapeutic Lamp. E. J. George and J. A. Toren, Chicago. —p. 235.
133 New Incision and Crushing Operation for Advanced Cases of Trachoma, where Operation of Combined Excision of Conjunctiva and Tarsus Cartilage is Refused. D. W. White and P. C. White, Tulsa, Okla.—p. 239.
134 Simple Rapid Perimeter. N. W. Price, Niagara Falls, N. Y.—p. 244.

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135 Case of Suspected Tumor of Pituitary Body. H. F. Hansell, Philadelphia.—p. 275.
136 Optic Neuritis (Unilateral) Resulting from Tonsil Infection. G. F. Suker, Chicago.—p. 278.
137 *An Eye Muscle Anomaly. F. C. Todd, Minneapolis.—p. 280.
138 Primary Progressive Atrophy of Iris. L. A. Lane, Faribault, Minn.—p. 285.

137. **Eye Muscle Anomaly.**—The case cited by Todd was one of deviation upward of the one eye, due to overaction of the inferior oblique, consecutive to congenital paresis (or insufficiency) of the superior rectus of the other eye.

Rhode Island Medical Journal, Providence

June, I, No. 6

139 Function of Liver. C. F. Peckham, Providence.—p. 131.
140 Study of Cardiorenal Types. H. P. Lovewell, Providence.—p. 137.

Southwestern Medicine, El Paso, Texas

May, I, No. 5

141 Roentgenotherapy. W. W. Wilkinson, Phoenix, Ariz.—p. 9.
142 *Extension of Tuberculosis of Lungs as Shown by Roentgen Ray. G. E. Bushnell, Fort Bayard, N. M.—p. 15.
143 Radium; Its Properties, Action and Local Application as Therapeutic Agent. R. Duncan, Los Angeles.—p. 22.
144 Typhus. F. H. Redewell, Phoenix, Ariz.—p. 31.
145 Three Cases of Brain Tumor. E. B. Rogers, El Paso.—p. 40.
146 Industrial Insurance. R. Ferguson, Bisbee, Ariz.—p. 48.

142. **Tuberculosis of Lungs as Shown by Roentgen Ray.**—Among 984 roentgenograms of different patients at Fort Bayard, 394 showed paravertebral tuberculosis as a marked feature. Only two cases of strictly apical tuberculosis were found. Eighty-two patients showed paravertebral tuberculosis alone (thickened lines with studding extending toward or to the apices). Thirty-nine of the latter had not reached the apex. Forty-five of the eighty-two cases of paravertebral tuberculosis gave no definite physical signs. All of the eighty-two patients had at some time shown symptoms of tuberculosis, such as cough, expectoration, pleurisy pains, bleeding, loss of weight, fever, night sweats, malaise, etc. All of the eighty-two, with two exceptions, had at some time or other had a positive sputum. Of sixty-two patients in the incipient stage admitted since Jan. 1, 1915, thirty-seven had no physical signs; all had or had had symptoms; all except one had or had had a positive sputum; plates of all except two showed paravertebral tuberculosis above hiluses; of these two one had a basal pleurisy, the other a few scattered foci, some of which were in the outer part of the lung.

Bushnell is of the opinion that these figures give evidence conclusively of the importance of tuberculosis of the deep lung in the early history of pulmonary tuberculosis. The so-called incipient cases are not truly incipient, they are, as a rule, detected when the deep tuberculosis has begun to invade the superficial lung, when on tuberculous lymphangitis or peribronchial bronchopneumonia there has been engrafted a larger focus of bronchopneumonia involving the cortical lung, the so-called primary lesion. Truly incipient tubercle gives no symptoms. Loss of weight, malaise, fever, cough and expectoration, hemoptysis, night sweats, are not symptoms of incipient but of advanced tuberculosis. Their development marks in a general way the progression of the disease from the benign lymphangitic stage to that of tuberculous bronchopneumonia, whether this disease manifests itself in the form of numerous minute foci immediately surrounding the larger bronchi or of single or few larger foci in the superficial lung. Physical signs of the deep tuberculosis are absent or indefinite. The diagnosis depends almost entirely on roentgenographic examination.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 12, I, No. 2941

1 Restricted Supply of Food; Its Relation to Health and Efficiency. M. S. Pembrey.—p. 605.
2 Three Common Intestinal Entamebae of Man, and Their Differential Diagnosis. C. Dobell and M. W. Jepps.—p. 607.
3 *Postoperative Tympanites. J. D. Malcolm.—p. 612.
4 Two Cases of Pregnancy Complicated by Myoma Uteri. J. B. Hellier.—p. 614.
5 Technic of Cesarean Section. E. F. Neve.—p. 615.
6 Gonorrhea Treated by Electrolysis; New Electrolyte. C. Russ.—p. 616.
7 Therapeutic Effects of Colloidal Preparations. M. Morris.—p. 617.

May 19, No. 2942

8 *Punctiform Hemorrhages of Brain in Gas Poisoning. F. W. Mott —p. 637.
9 *Pathology of Cardiac Dropsy. C. Bolton.—p. 642.
10 Apparatus for Treatment of Fractures of Femur and of Leg. V. Soubbotitch.—p. 646.
11 Glycerin and Antiseptics. H. P. Goodrich.—p. 647.
12 Colloids in Syphilis. J. E. R. McDonagh.—p. 648.
13 *Hypertrophy of Nipple in Leprosy. A. Powell.—p. 649.
14 Primary Carcinoma of Stomach in Boy. W. B. Cosens.—p. 649.

3. **Postoperative Tympanites.**—In eleven cases, occurring in 1,000 consecutive operations involving the peritoneal cavity, Malcolm endeavored to prevent or cure postoperative tympanites by making a fistula. In that series he obtained a death rate of 3.8 per cent. During the most satisfactory recoveries from operations on the abdomen, patients frequently complain of slight, it may be very slight discomfort, nausea, or crampy pains until gases pass freely from the anus. If gases do not escape downward postoperative tympanites develops, which may be removable after more or less difficulty in clearing the bowels, or may persist and be followed by death. When a case of persistent tympanites is cured by making a fistula, the distention rapidly diminishes with the escape of gases and feces through the artificial opening, and the bowels act naturally after a few days, although an evacuation could not be brought about by any means before the fistula was made. There is in such cases no obstruction and no paralysis of any part of the intestine. All that is necessary to effect a cure is a free escape for the contents of the upper bowel and a short rest for the colon. Malcolm submits that by draining the alimentary canal in suitable circumstances the mortality from abdominal operations may be reduced by a case here and there, and that patients whose lives may be saved in this way are generally suffering from an intestinal obstruction brought about by a disturbance of coordination between the muscular activity of the different parts of the alimentary canal, aggravated perhaps by mechanical, physiologic or therapeutic hindrances to the flow of the intestinal contents, the colon being the part in which difficulty most frequently arises.

8. **Punctiform Hemorrhages of Brain in Gas Poisoning.**—The brains in two cases of gas poisoning, in which gas was employed in an offensive by the enemy, were examined by Mott. The whole of the white matter was peppered over with small dark spots about the size of a pinhead. These were due to hemorrhages, but microscopic examination showed conditions which Mott has not found in carbon monoxid poisoning, or in other forms of gas poisoning; in fact, he says, he has never seen any condition like this. The red blood corpuscles have been in large measure broken up, and the hemoglobin converted into dark chocolate colored pigment granules, which fill the capillaries, arterioles and venules of the white matter of the brain. This is possibly methemo-

globin. Mott says that the reason why these punctiform hemorrhages occur in the white matter of the brain in gas poisoning is primarily due to the anatomic condition of the vessels in the white matter of the cerebrum, where the arteries are terminal; each small artery having a separate capillary system; likewise the emerging veins. A tendency to stasis may be brought about in these separate vascular systems by the failure of the heart as a force pump and suction pump, also by those respiratory conditions which lead to right heart dilatation and interference with the return of blood from the skull. In most cases the two factors are combined. It seems probable, however, that either factor may act independently in causing inflammatory stasis and thrombosis, resulting in multiple punctiform hemorrhages. In the gas case, in which the hemoglobin has been converted into pigment granules, it seems probable that the hemorrhage may be accounted for by embolic occlusion of the capillaries and arteries.

9. **Pathology of Cardiac Dropsy.**—The increased output of lymph giving rise to cardiac dropsy, Bolton says, is one of a very definite series of events following the occurrence of failure of the heart in its capacity as a pump. These events may be grouped into the following stages: Stage 1, accumulation of blood in the veins, with a moderate rise of venous and capillary pressure in all parts. Abstraction of blood from the arterial system with a fall of arterial blood pressure. Stage 2, dilatation of the veins and capillaries of the central parts of the body, with a fall of venous and capillary pressure to normal or thereabouts. This leads to increased congestion of the central parts and anemia of the peripheral parts of the body, in which the venous and capillary pressures fall below normal. Increased output of lymph in the congested area giving rise to dropsy. Increased absorption of water in the anemic areas, which balances the loss of fluid by the blood. Simple hydremia results. Stage 3, vasomotor constriction resulting from anemia of the medulla causing (1) a rise of arterial pressure to the normal; (2) a moderate rise of venous and capillary pressure in the central parts of the trunk. The venous and capillary pressures of the peripheral parts remain subnormal, or may become normal. In stage 4, hydremic plethora is established and raises the venous and capillary pressures in the central portions of the body to a great height. There is still a relative anemia of the peripheral portions, although to an increasingly limited extent, as the congested area spreads peripherally. In stage 5, the ascites and hydrothorax increase in degree and the edema spreads in the areolar tissues peripherally, as the congested area encroaches on the anemic regions. True plethora is established. The abnormal output of lymph leading to dropsy is primarily conditioned by the nutritive state of the capillary wall, and is increased by the general plethora and consequent high capillary pressure. In uncompensated heart disease in man the central portions of the trunk are relieved by gravity at the expense of the legs, which become included in the congested area. The dropsical area spreads up the legs to the abdominal wall, thus encroaching on the anemic area from below upward.

13. **Hypertrophy of Nipple a Sign of Leprosy.**—Powell reports observations made by A. J. Kohiyar on eighty-one lepers. He found both nipples very large in sixty-two; both nipples moderately large in eight; large on one side only in two; both nipples normal in nine. Powell examined 221 cases. Both nipples were enlarged in 167; one nipple enlarged in forty-seven. The size of the nipple in the female depends on so many factors that it is of no aid in diagnosis. As a control, 200 consecutive nonleprous males were observed. In only two, that is, 1 per cent. was any hypertrophy comparable to that of a leper observed.

Lancet, London

May 12, I, No. 4889

15 Gunshot Wounds of Joints, Their Pathology and Treatment. F. Cook.—p. 711.
16 *Direct Transfusion of Blood. A. Fullerton, G. Dreyer and H. C. Bazett.—p. 715.
17 Fragment of Shell Embedded in Internal Popliteal Nerve. J. M. Davidson and P. Lockhart-Mummery.—p. 719.
18 *Oculopalpebral Prothesis. A. M. Ramsay.—p. 721.
19 Surgical Correction, without Cicatrix of Unlovely Noses. J. Bourguet.—p. 722.
20 *Easily Improvised and Effective Method of Obtaining Plate Cultures of Anaerobes. W. J. Wilson.—p. 724.
21 New Bone Clip for Treatment of Fractures of Long Bones. J. E. Adams.—p. 725.
22 Question of Economy in Food. M. S. Pembrey.—p. 732.

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23 Paratyphoid Infections. C. H. Miller.—p. 747.
24 Trench Shin an Infectious Fibrositis. G. Chambers.—p. 752.
25 Amebic Dysentery and Its Relationship to Form of Diarrhea Occurring in Egypt. G. M. Findlay.—p. 755.
26 Treatment of Gonorrhea in Field Ambulance. E. T. Burke.—p. 756.
27 Retrograde Strangulation of Intestine from Constriction by External Aperture. S. Mort.—p. 758.
28 *Treatment of Varicocele by Excision. P. Turner.—p. 759.
29 Case of Gunshot Wounds of Face and Thighs; Edema of Glottis; Death under Nitrous Oxid Anesthesia. G. H. Colt.—p. 760.
30 Method of Suturing Ruptured Perineum. W. H. Bishop.—p. 761.

16. **Direct Transfusion of Blood.**—In the method described by the authors transfusion is effected from a small artery to a suitable vein. The apparatus used consists of two glass or silver cannulas connected by a short length (about 7 inches) of india rubber tubing, the whole being coated within and without by a thin layer of wax made by mixing hard and soft paraffin. The paraffin mixture consists of about equal parts of the constituents, or these should be mixed in such proportions as to set at a temperature between 43 and 48 C., the optimum being about 45. This mixture may be used again and again, but should be strained occasionally to ensure its freedom from solid particles. The rubber tubing can be used several times, if necessary, but it is preferable to renew it for each operation. Coating is effected by immersing the apparatus in the paraffin mixture in a bath, the temperature of the mixture being kept at about 130 C. Sterilization of the cannulas and tubes is thus effected. The connected cannulas and tubes are allowed to fill with the mixture, care being taken to avoid air bubbles. The apparatus is then held vertically by seizing the smaller cannula, and the fluid is allowed to run out of the end of the larger. The last drops are removed by drawing the end of the dependent cannula lightly across sterile gauze. The coating is allowed to set, and the tubes are then wrapped in sterile material, ready for use. If the tubes and cannulas are coated in this way no clotting need be anticipated, as in experiments on animals no clotting has been found after two and one-half hours. Should clotting take place it will be found to be due to excessive injury to the vessels, especially the artery or to damage to the coating of the tubes from rough handling.

18. **Oculopalpebral Prothesis.**—Ramsay uses an ecblepharon fitted to a spectacle frame.

20. **Method of Obtaining Plate Cultures of Anaerobes.**—The distinctive features of the methods described by Wilson are the interposition of a perforated circular disk between plate culture and vessel containing alkaline pyrogallate solution.

28. **Treatment of Varicocele by Excision.**—Turner describes his method as follows: The spermatic cord is exposed by the usual incision just below the external abdominal ring; the cord enclosed in its fascial covering is then freed and drawn out of the wound. With a knife or a sharp pair of scissors a longitudinal incision an inch or an inch and a half in length is made through the fascial coverings in front until the veins are exposed. The middle of the incision is secured on each side by a pair of Spencer Wells forceps, which act as retractors. With a blunt dissector the veins are separated from the sheath on each side until the vas, which is situated behind and is more closely connected with the sheath, is reached. The anterior three fourths or so of the venous plexus, including all the dilated veins, are then separated, leaving the remaining veins with the vas, which is not touched and is not separated from the sheath. The anterior mass of veins is now drawn downward and a little dissection frees them as high as is thought desirable. Next they are drawn upward and the separation can now be effected as low as the top of the tunica vaginalis. The separated group of veins is now ligatured above and below and the interven-

ing part is cut away. The ends of both the ligatures are cut short and the testicle is replaced in the scrotum. The sheath is now shortened by retracting the lateral margins of the longitudinal incision and closing this by a fine continuous catgut suture in the transverse direction. It is well first of all to approximate the upper and lower angles of the incision with forceps and to observe what effect this has on the position of the testicle. As a rule, it raises it to a slightly higher level than the testicle of the other side, but if further elevation is considered desirable the length of the original incision can be increased. All bleeding points are then secured, and the wound is closed in the usual way. The great advantage of this operation is that the opening in the sheath is completely closed, and hence the cord and the divided veins do not become adherent to the surrounding tissue. The tender inflammatory nodule around the site of the operation is absent or only very slightly marked, while the testicle remains suspended in a normal manner in the scrotum at a higher level with its mobility unimpaired.

Annales de Médecine, Paris

March-April, IV, No. 2, pp. 109-228

31 *Cholesterinemia in Paratyphoid Fever. G. Etienne, R. Jolly and J. Mondelange.—p. 109.

32 *Meningitis from Otitis Without Suppuration in the Tympanum; Two Cases. Baldenweck and Roger.—p. 127.

33 Evolution of Pleurisy at the Apex in the Tuberculous. E. Sergent and German.—p. 140.

34 *Protuberant Abdomen in Soldiers. (Les gros ventres de la guerre: leur pathogénie, les erreurs qu'ils entrainent.) D. Denéchau and H. Mattrais.—p. 147.

35 *The Urologic Phenomena with Epidemic Meningitis. III. P. Cazamian.—p. 165.

36 The Clinical Features and Pathologic Anatomy of Complete Severing of the Spinal Cord; Fifteen Cases. G. Guillain and J. A. Barré.—p. 178.

31. **Cholesterinemia in Paratyphoid Fever.**—In the seventeen patients with paratyphoid fever the cholesterin content of the blood was below normal during the disease and above normal as they became convalescent, finally settling down to the normal figure, 1.5 gm. This range is like that observed in typhoid. When a relapse was impending there was no rise in the cholesterin content or it dropped to subnormal figures. The mechanism seems thus to be similar to that of other defensive processes of which sero-agglutination is the witness or the translation.

32. **Otitic Meningitis without Suppuration in the Middle Ear.**—Baldenweck and Roger refer to meningitis which appears as the first objective clinical manifestation of a non-suppurative otitis. The four different ways by which the infection can be transmitted are described, with two cases with necropsy, showing that this complication may occur even with an infection in the middle ear too mild to have attracted attention.

34. **Protruding Abdomen in Soldiers.**—Among the puzzling cases described was one in which a man was able by muscular action to cause his abdomen to protrude to such an extent that, as he complained of pains and vomited, gastro-enteritis or lumbar Pott's disease was assumed and he was kept in the hospital for months. In another case the diagnosis of tuberculous peritonitis seemed unmistakable, and treatment was applied on this basis, but flexing the thighs on the abdomen as the man reclined caused the protruding abdomen to recede. In all the nineteen cases described, with several illustrations, there had been at first some functional disturbance. Roentgenoscopy revealed that abnormal excursions or positions of the diaphragm were mainly responsible, aided by relaxation of the abdominal walls, and possibly a vicious attitude of the pelvis or lower spine. There was no general ptosis in any instance. By gentle continuous pressure on the abdomen, the diaphragm can be forced up and the abdomen then subsides at once to a normal outline. These "war abdomens" are analogous to hysteric tympanites and "nervous pregnancy." The aspect of the abdomen was like that of a six or seven months' pregnancy.

35. **The Urine in Epidemic Meningitis.**—In two previous articles on the "urologic syndrome" in meningococcus meningitis, Cazamian discussed the polyuria and elimination through the kidneys. He here describes conditions in regard to elimination of albumin, sugar, indican and urobilin as determined in 113 meningitics. He never found bile pigments, biliary acids or bodies of the acetone series in any of these cases. Albuminuria was the rule, but it was transient. Its prolonged persistence is more important for the prognosis than its intensity at any time. He is inclined to regard it as of central origin, with perhaps some liver element, but not connected with the condition of the kidneys. Urobilinuria was encountered in about 75 per cent. of the cases; it seemed to appear or disappear in waves of a few days, but was highest in the early stages.

Bulletin de l'Académie de Médecine, Paris

May 1, LXXVII, No. 18, pp. 555-574

37 *The Use of Saccharin in Place of Sugar. Pouchet and Others. —p. 556.

38 Ozone in Treatment of Experimental Peritonitis. O. Laurent. —p. 560.

39 Persistence of Effects of Concussion After Trephining for War Wounds of the Skull. L. Mac-Auliffe and A. Carel.—p. 566.

40 *Experimental Research on Cornmeal. E. Weill and G. Mouriquand. —p. 569.

41 *Intravenous Quinin Treatment of Malaria. F. Barbary.—p. 570.

37. **Regulation of Use of Saccharin.**—In the discussion of the report from a committee that had been studying this subject, Reynier declared that his extensive laboratory and experimental research on saccharin demonstrated that it is not at all toxic. He kept for ten years, without its spoiling, a meat bouillon containing 3 per cent. saccharin. He also kept fishes in saccharinated water for months at a time, and they did not appear to suffer. Dogs and guinea-pigs given large amounts of saccharin in their food increased normally in weight. As saccharin is eliminated unmodified in the urine, he gave it as an antiseptic to patients with pyelonephritis and purulent cystitis. In doses up to 4 or 5 gm. a day, kept up for months, the patients bore it well, and had no digestive trouble. In some the urine became acid and the general condition improved. On the other hand, the committee, as a whole, regard saccharin as liable by its antidiastasic action to interfere with the normal phenomena of digestion. When some function is disturbed, even in a slight and transient manner, but repeatedly or constantly, conditions are created which predispose to a definite lesion. For this reason the committee disapprove absolutely of the addition of saccharin to food. Pouchet declared that when condensed milk is put up with saccharin, gastro-intestinal accidents are liable to occur. Robin and Hayem stated that they had several times observed an injurious influence from saccharin when taken in too large quantities, especially by diabetics. The Académie adopted the committee report without modification. It specified as the articles in which the use of saccharin is permissible: wines (except medicinal wines), ciders and pear cider, brandy, liqueurs (except for articles destined for exportation), lemonade, coffee and tea. For the following articles the use of saccharin should be forbidden: beer, preserves, jellies, marmelades, stewed fruits, cakes and pastry, cocoa, chocolate and condensed milk and household drinks. The third and last group included articles for which saccharin is forbidden, but they could be dropped entirely from the bill of fare without harm from an alimentary point of view, namely, syrups, ices, sherbets, candy and fancy desserts.

40. **Cornmeal in War Bread.**—Weill and Mouriquand report experiments on pigeons which sustain the assumption that cornmeal should not be bolted as this removes certain elements of vital importance.

41. **Treatment of Malaria.**—Barbary has been treating malaria during the last ten months by intravenous injection of 0.5 gm. quinin in 125 gm. of physiologic saline, with 1 gm. of ethyl carbamate. He has thus treated 899 patients with malaria at the military Hospital at Nice, and expatiates on the prompt and effectual action of this route. The injections were given every third day at first and then at five day intervals.

Paris Médical

May 5, VII, No. 18, pp. 341-388

42 The Tuberculous Origin of Psoriasis. E. Gaucher.—p. 342.
43 Factitious Eruptions and Ulcers. G. Milian.—p. 343.
44 The Present Diversity in Treatment of Syphilis. Hudelo.—p. 351.
45 *Problems in Syphilis That Call for Special Study. Sabouraud. —p. 369.
46 *Epinephrin Combats Iodin Poisoning. G. Milian.—p. 374.
47 Treatment of Suppurating Dermatitis. (Les pyodermites et leur traitement dans une ambulance d'armée.) Carle.—p. 376.

45. **Problems in Syphilis.**—Sabouraud remarks that it used to be said of Fournier that he wanted to make of general pathology merely an annex to syphilography, but time has proved him right, and that he even did not go far enough. The extent to which inherited syphilis is a factor in lupus has never been investigated. Sabouraud is convinced that in many cases of lupus, treatment should be given both for syphilis and tuberculosis. Syphilis as a factor in leg ulcer also deserves attention. The question as to the subsidence with age of the Wassermann reaction in inherited syphilis is another question that should be studied, as also the gravity of acquired syphilis in those who had inherited it. He declares that the effectual treatment of inherited syphilis has not been worked out systematically yet. It would be very instructive to have the curve of the Wassermann reaction over ten years for even ten patients with inherited syphilis, but nothing approximating this has been published yet. Another subject that needs study is the so-called conceptional syphilis. The seroreaction of the wife of an old syphilitic is often semipositive, even when there has been no pregnancy. He urges that the Wassermann test should be applied regularly to the consorts of the syphilitic, in order to ascertain more about this dlemicontamination. Persevering systematic research along the above lines may throw light on prophylaxis and treatment.

46. **Epinephrin Combats Iodin Intoxication.**—Milian tells of the prompt arrest of symptoms of severe iodism, under epinephrin, in a man taking a vigorous course of potassium iodid. The symptoms could be banished at once by giving epinephrin, or their appearance prevented by giving the epinephrin along with the drug. The preventive and curative action of epinephrin in regard to iodism is important, not only because it will allow us to push potassium iodid without fear, but also theoretically as it shows that the iodin symptoms come from suprarenal insufficiency. "Thus topples over one more of the old 'idiosyncrasies.'"

Presse Médicale, Paris

April 26, XXV, No. 24, pp. 241-248

48 *Partial Rupture of Abdominal Rectus Muscles. H. Hartmann. —p. 241.
49 Injections of Colloidal Mercury Plus Sulphur to Reactivate Wassermann Reaction. A. Bergeron and C. Jouffray.—p. 241.
50 Primary Suture of War Wounds. P. Dézarnaulds.—p. 242.
51 Pinching Test for Trunk Nerve in Course of Operations on Peripheral Nerves. (L' épreuve du pincement tronculaire.) J. A. Sicard and C. Dambrin.—p. 248.

48. **Rupture of Rectus Muscle.**—In both of Hartmann's cases the rupture occurred during an attack of coughing. One patient was a healthy man of 42 who felt a sudden sharp pain in the lower left hypogastrium, and a small hard protuberance developed in the abdominal wall at that point, with some tendency to ecchymosis. In the second case the diagnosis of appendicitis had been made, and no heed was paid the woman's account of her sudden feeling of laceration in the right abdomen coming on during an attack of coughing. The abdomen was distended and painful, with vomiting and retention of urine, and the wall of the right lower abdomen was tender, while a tumor could be palpated in this region. The tumor could not be pushed down into contact with the vaginal wall, although certain other findings suggested an ovarian cyst on a long pedicle. At the laparotomy the peritoneum was found sound except at one point where it bulged a little and looked brownish. This suggested a subperitoneal hematoma consecutive to partial rupture of a muscle, which proved to be the case. The rupture of the deeper portion of the rectus had induced reflex phenomena simulating a peritoneal affection. In a similar case on record, the symptoms had suggested internal strangulation; in nine reported by Quénu there seemed to be appendicitis, but in all the trouble was merely a subperitoneal hematoma in contact with the peritoneum but without any inflammation in the latter.

Progrès Médical, Paris

May 5, XXXII, No. 18, pp. 147-154

52 *Sciatica, Zona and Skin Affections as Signs of Incipient Tuberculosis. (Propathies révélatrices de tuberculose pulmonaire.) P. Raymond.—p. 147.
53 War Wounds of the Eyeball. M. Bourdier.—p. 149. To be continued.
54 Injury from Metallic Dust in the Lungs in Munition Workers. (Forme nouvelle de pneumokoniose.) F. Renoux.—p. 151.

52. **Localized Nervous and Skin Affections as Heralds of Tuberculosis.**—Raymond cites a number of cases from his own and the experience of others in which the sudden appearance of sciatica, zona, psoriasis or nodular erythema was followed by manifestations of pulmonary tuberculosis. The connection between them was unmistakable, and the data reported confirm the necessity for close examination for possible pulmonary lesions when any of these "propathies of pulmonary tuberculosis," as he calls them, are encountered. Each testifies to the injury of some nerve or nerves from toxins generated by bacilli, usually tubercle bacilli.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 5, XLVII, No. 18, pp. 545-592

55 *Occurrence and Spread of Fat Embolism. A. Katase.—p. 545.
56 Progressive Spinal Muscular Atrophy in Insane Woman. P. Sokolow.—p. 551.
57 An Iron-Lecithin Preparation in Experimental Anemia. (Wirkung von Fortonal bei experimentell anämisierten Kaninchen.) B. Libin.—p. 553.

55. **Fat Embolism.**—Katase tested for fat droplets the lungs from 120 cadavers. There had been a fracture in only nine, and in one of these no fat was found in the lungs. In the other 111 cases large amounts of fat were found in 2.7 per cent.; considerable fat in 3.6; slight amounts in 16.2; minimal in 33.3 and none in 44.2 per cent. The males formed 54 per cent. of the total. Slight amounts of fat were found in three children under 10 and considerable amounts in two others. The extreme amounts were found exclusively in three persons between 50 and 80. None of the cadavers were corpulent; most of them were lean. In the three extreme cases of fat embolism there was parenchymatous nephritis, as also in two of the child cases with considerable fat; one of these children had the typical thymic-lymphatic status, the other hypertrophy of mesenteric lymph glands. In two other cases of parenchymatous nephritis there was no or minimal fat to be found in the lungs. No history of trauma or concussion of any kind could be learned in respect to any of the cadavers with much fat, and no fracture was found in any of the 111 cases analyzed. The findings suggest, however, that severe kidney disease is responsible to a more or less extent for fat embolism, but the mechanism for this is still obscure.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 5, XXXVIII, No. 27, pp. 417-432

58 *Meningitis Commencing with Gastro-Intestinal Symptoms. Andruetto.—p. 417.

April 8, No. 28, pp. 433-448

59 *Treatment of War Wounds. (La chimiatria antisettica.) Schiassi. —p. 433.

58. **Atypical Meningitis.**—In the two cases reported the men had been under treatment for one and two weeks for severe gastro-intestinal trouble, vomiting, pains and diarrhea, when the discovery of the stiff neck gave the clue to the true trouble, confirmed by lumbar puncture. The fluid in one case at first was limpid and only on standing could a few flakes of fibrin be detected, but the pressure was high in both cases.

59. **Treatment of War Wounds.**—Schiassi has long been emphasizing the advantages of treating war wounds by inducing an intense flow of fluids outward, by exosmosis, from the depths of the wound outward. He defines the process as an "exhumoral expulsive cellular antisepsis," supplemented by

an intense plasmatic and histologic defense and regeneration. The solution he uses for the purpose is a mixture of 8 gm. sodium chlorid; 0.3 gm. potassium chlorid; 1 gm. calcium chlorid; 1.5 gm. glucose and 1,000 c.c. water. For stronger action, he adds to the above, 2 gm. sodium citrate and 0.5 gm. sodium hydrate. This fluid disintegrates dead tissues and draws fluids out of the tissues as if by suction. This exosmosis is further promoted by keeping the part in a hot bath for hours at a time (39 C.).

Policlinico, Rome

May 6, XXIV, No. 19, pp. 609-640

60 *Gangrene in the Wounded. I. Tansini.—p. 609.
61 Treatment of Septic Wounds. L. Silvestrini.—p. 614.
62 *Biologic and Pathogenic Importance of Lack of Vitamins in Soldiers' Rations. P. Ramoino.—p. 616.

60. **Gangrene in the Wounded.**—Tansini discusses the gangrene with "trench foot," gas and simple gangrene. He says that the hope of benefit from oxygen has had to be abandoned, but good results have been obtained in many gas cases by prompt excision into sound and bleeding tissue. It is important to refrain from severing the entire muscle or group of muscles, but they can be slit over long distances with comparatively little harm. Excellent results have been obtained with these multiple long incisions, extending far beyond the part affected, at intervals of 6 or 7 cm. Through these incisions the muscles and fascia are worked apart, down to the bone, as the primary and most virulent gaseous focus is deep, and often some deep hematoma is a favoring factor. From this deep focus the gangrene spreads in all directions. The gangrenous tissues are best cut out with the actual cautery. If the gangrene is absolutely massive, he advises immediate and high amputation but, in case of doubt, multiple long incisions and exploration in the depths. The incisions may have to extend from the foot to the root of the thigh.

62. **Vitamins in Soldiers' Rations.**—Ramoino remarks that the soldier now on the firing line, "which is equivalent to saying in the trenches," is unable to supplement the ration given him, as under other conditions he can do. He is like an animal in a laboratory experiment fed in a certain way to study the effects of the restricted diet. The vicissitudes of weather, emotional stress and confinement do not depress the resisting powers as much as might be expected until conditions prevent an ample and varied food supply. Then the men lose appetite and force, but they do not seem to be sick. Gradually, however, gastro-intestinal disturbances develop, constipation alternating with diarrhea, the latter mostly at night. Herpes, eczema and epistaxis are common, the gums bluish, the breath fetid. There are often also pains in joints, muscles and head, with progressive loss of weight, dulness and melancholia, but no fever. In five cases there was considerable edema. All these disturbances generally subsided when vegetables and fruit could be obtained. The soldiers' ration, he continues, has been calculated on the basis of muscular work and contains too much protein, especially for men from the rural districts who are not accustomed to much meat. The Italian ration lacks vitamins, especially the antiscurvy vitamin. The men in the trenches, who need them most, get a vitamin-poor food. The ration contains the anti-beriberi vitamin but none of the antiscurvy vitamin. When this is supplied, the men regain strength and good spirits. He recalls that with the introduction of the potato into Europe, the great epidemics of scurvy ceased to appear further. The distribution of lemons among the men in the trenches was found particularly advantageous, and he advises this whenever canned meat, etc., has to be used much. It is better also, he found, to restrict the amount of boiling to the minimum.

Riforma Medica, Naples

April 21, XXXIII, No. 16, pp. 421-448

63 Advantages of Intravenous Injection of Colloidal Gold in Typhoid; Thirty-Two Cases. R. Massalongo and S. Vivaldi.—p. 421. Commenced in No. 15, p. 397.
64 *Intradermal Vaccine Reaction in Typhoid and Paratyphoid. M. Pennetta.—p. 427.
65 Centrifugal Massage for Frostbite. A. di Luzenberger.—p. 429.
66 *Postoperative Brachial Monoplegia. N. Federici.—p. 431.

64. **Intradermal Reaction in Typhoid and Paratyphoid.**—Pennetta used a vaccine with typhoid or paratyphoid bacilli, killed with heat, applying it by the Mantoux intradermal technic. The response was constantly negative in the sick with other affections while it was positive in ten of fifteen cases of typhoid, in three of five paratyphoid A, and in nine of ten paratyphoid B as also in two of eight convalescents from typhoid. It was also positive in eight of eleven recently vaccinated patients. In all the other patients, as also in ten healthy persons, no reaction was apparent. The test may thus prove useful in differentiating incipient cases and in the first and second weeks. It elicited a positive response in 73.3 per cent. of the typhoid affections. He did not apply the test in the especially severe cases.

66. **Postoperative Paralysis.**—Federici reports a case of motor paralysis of the left arm after a laparotomy. The arm had not been fastened or constricted but had been held slightly raised and abducted for a time. A nervous predisposition and the shock of the operation evidently cooperated. As the paralysis was absolutely peripheral he thinks the chloroform anesthesia had nothing to do with it.

Prensa Medica Argentina, Buenos Aires

April 20, III, No. 32, pp. 341-351

67 *Painful Persistent Priapism. J. A. Esteves and R. Chiappori. —p. 341. Commenced in No. 31, p. 336.
68 *Cancer of the Lung. F. C. Arrillaga.—p. 346.
69 Spasm of the Colon with Transient Obstruction. C. B. Udaondo. —p. 348.

67. **Persistent Priapism.**—In the case of persistent priapism reported there was at first hyperesthesia of the perineal region and some contracture of the perineal muscles, with exaggeration of the cremaster and tendon reflexes, but under operative treatment approximately normal conditions in all respects were restored. In certain other cases on record the priapism gradually subsided spontaneously, after a few weeks or a month or two, but further functioning was entirely abolished. In the cases given operative treatment, function was restored. Three theories have been advanced to explain persistent priapism, thrombosis, hematoma or nervous spasm. In the case here reported, the unmarried man of 55 had had for some time unusually protracted erections. He entered the hospital when the erection had lasted for two days. The tenth day each corpus cavernosus was punctured with a large trocar, at about the center. Blackish fluid blood was aspirated and squeezed out. By the next day the man was much relieved and free from pain, and there was no further erection although parts of the corpora cavernosa felt abnormally hard and both were somewhat larger than normal. Since then conditions and function have been approximately normal except for the patches of induration in the corpora cavernosa still evident after six months. Esteves and Chiappori incriminate these fibrous changes as responsible for the upset in the mechanism of erection. The corpora cavernosa had lost their elasticity and contractility. This is demonstrated among other facts by the way in which the blood at the puncture has to be aspirated in such cases, instead of its spurting as under normal conditions. The data cited impose the necessity for operative treatment at once. This relieves the patient's suffering and wards off further local trouble. They advise general anesthesia to begin with. If the erection still persists, puncture or incise one or both of the corpora cavernosa. Leukemia or miliary tuberculosis have been noted in some of the cases on record. Terrier found a record of splenic leukemia in sixteen of forty-eight cases of his compilation. Priapism may be a precursor of leukemia.

68. **Carcinoma of the Lung.**—The man of 37 had neither pain, dyspnea, chronic cough nor expectoration when he entered the hospital. He was occasionally taken with a spasm of coughing during which he expelled scraps of tissue which proved to be cancer tissue; one an inch and a quarter long by half an inch wide. He had been previously in good health but the cancer proved fatal in three months after the first symptoms, pain and cough, which later had subsided completely except for the rare paroxysms of coughing.

Semana Medica, Buenos Aires

March 22, XXIV, No. 12, pp. 343-370

70 *Seborrheic Desquamating Erythrodermia. E. Bordot and R. D'Ovidio.—p. 343.
71 The Rise and Fall of Certain Medical Measures. (La caida de las hojas.) A. D'Alessandro.—p. 348.
72 *Lymphocytosis Characteristic Finding in Blood of Syphilitics. C. P. Mayer and A. C. Gourdy.—p. 359. Continuation.
73 The Problem of Gastrulation in Mammals. A. E. Parodi and V. Widakowich.—p. 363.

March 29, No. 13, pp. 371-398

74 *Bites of Poisonous Spiders. (Arañidismo.) P. P. P. Garcia.—p. 371; (Picaduras de arañas venenosas.) B. A. Houssay.—p. 382.
75 Advertisements of Nostrums in the Lay Press. (Profilaxia social. El curanderismo en la prensa.) J. A. Lopez.—p. 383.
76 *Tuberculous Meningitis in Infants. E. Bordot and R. D'Ovidio. —p. 385.

70. **Desquamating Erythrodermia.**—Bordot and D'Ovidio summarize thirty-four cases of what they call Leiner-Moussous' disease. They explain it as a seborrheic desquamating erythrodermia of toxic origin, the consequence of the accumulation of toxins from defective digestion. It is most common in the winter, and disappears completely during the summer. It seems to affect exclusively breast-fed children, and develops in them within the first forty-five days of life. The best treatment is breast milk at intervals of fully four hours, a total of only five feedings in the twenty-four hours. The general condition did not seem to suffer after subsidence of the skin affection, the children developing normally thereafter.

72. **Lymphocytosis in Syphilis.**—See abstract 80 in THE JOURNAL of March 17, 1917, p. 884.

74. **Spider Bites.**—Garcia reviews considerable South American literature on this subject, citing eleven kinds of spiders the bites of which are known to be more or less poisonous. The symptoms seem to be of four types, local necrosis, the icteric, exanthematous and neurotoxic. The local process of defense in the necrotic and exanthematous types generally suffices to ward off further trouble. He reiterates that spider bites are not fatal. Cerrutti, notwithstanding the severity of the clinical picture in some of his more than 100 cases, had no deaths, and Garcia could find no record of fatalities from spider bites except with pre-existing disease of the heart, liver or kidneys.

He reports in detail four cases personally observed, saying that as the insect is seldom caught or killed, it is impossible to be sure of the species, and no antiserum is available. In his cases, besides symptomatic measures, he gave a subcutaneous injection of serum against snake bites, although knowing that it has no specific action in spider bites. The bitten area should be isolated with a tourniquet, never leaving it on for more than half an hour. The poison should be removed by incisions, cauterization, aspiration or be destroyed in situ if it has not yet been absorbed. Lacerda advises for this a 1 per cent. solution of potassium permanganate, injecting it into the lesion and around it. This neutralizes the toxin in vitro. Kaufmann uses 1 per cent. chromic acid; Halford 10 or 20 drops of a 50 per cent. solution of ammonia, injected into a vein, and Calmette, a few cubic centimeters of a 2 per cent. solution of calcium hypochlorite. As the chlorin gas is liberated it may act at a distance if the poison has been absorbed. The region can be dressed with a 1 per thousand mercuric chlorid solution or 4 per cent. boric acid, or with potassium permanganate.

Houssay's research has failed to show any hemolysins in the poison of spiders. He also states that his extensive study of the subject has shown that very few species are poisonous, and that even with the poisonous species accidents are rare, except with the *Latrodectus mactans.* [The spiders of this extremely venomous lactrodectus family are small, black, and spotted with red.] No antisnake venom serum neutralizes spider poison. He is convinced that some local or general infection complicating the spider bite was responsible for the disturbances in many of the cases that have been published.

76. **Tuberculous Meningitis in Infants.**—Bordot and D'Ovidio state that among 5,000 infants brought to the consultations at the Mejia Hospital in six years there were only fifteen known to have tuberculous meningitis. The diagnosis was confirmed by inoculation of animals in the majority. In only two of the cases was there a history of preceding acute infectious disease, whooping cough or measles. The irregularity of the symptoms is a special feature of meningitis in the younger infants and is liable to prove misleading. Somnolency and rapid loss of weight are always present, the weight dropping by 40 or 50 gm. a day. The child sleeps night and day, never crying for its food, and it is constantly indifferent to what is going on around. The face has a waxy tint, and the pupil reactions are sluggish. The cerebrospinal fluid shows abnormally high albumin content. The ages ranged from 2 months and 11 days to 11 months in the fifteen cases, all dying in from eight to thirty days. The writers know of only two cases of recovery in young infants on record: Gareiso's case in 1903, and Morquio's case in a boy of 2 who seemed to recover complete health but he died a year later.

Siglo Medico, Madrid

April 28, LXIV, No. 3307, pp. 285-304

77 Vaccine Therapy of Staphylococcus Skin Disease and Buboes. Azua.—p. 286. Concluded in No. 3308, p. 306.
78 *Intraspinal Treatment of Cerebrospinal Syphilis, Tabes and Progressive Paralysis. G. R. Lafora.—p. 289. Commenced in No. 3304, p. 226.

78. **Intradural Treatment of Cerebrospinal Syphilis.**—Lafora relates that he has applied the intradural administration of mercurialized serum, according to Byrnes' technic (THE JOURNAL, 1914, **63**, 2182), in treatment of five cases of tabes, two of old syphilitic myelitis and three of progressive paralysis. He has now under treatment a case of atrophy of the optic nerve from basilar meningitis and one of five year old syphilis. He summarizes the details of the more typical cases, and gives specimens of the handwriting in one of the paralysis cases, showing the progressive improvement, comparing the results with those that have been published by others. He combined the intraspinal treatment with intravenous, and regards this as the ideal combination for treatment of syphilitic and parasyphilitic affections of the nervous system, saying that it does not seem to be toxic when applied cautiously and in not far advanced cases. It is the preferable method for tabes, as it cures the early cases, he reiterates, and improves in all cases better than any other method of treatment. In general paralysis his results were also better than with other methods; in the early cases it seems to cure, but time alone can decide this.

Russkiy Vrach, Petrograd

XVI, No. 6, pp. 121-144

79 Influence of Surgery on Outcome of War. M. I. Rostovtseff. —p. 121.
80 Influence of Sulphur-Saline Waters on General Metabolism. B. I. Slovtsoff and A. N. Tchernevsky.—p. 123. To be continued.
81 War Wounds of the Carotid Artery; Five Cases. V. I. Savvin. p. 126.
82 *Comparative Wassermann and Stern Reactions. A. A. Melkikh. —p. 128.
83 Treatment of Traumatic Aneurysms. V. E. Salishtcheff.—p. 132.
84 Oxidation of Iron as the Chemical Basis of Vital Phenomena. N. A. Sakharoff.—p. 135.
85 *Experimental Cholesterinemia and the Disturbances It Induces. N. N. Anichkoff.—p. 136. Commenced in No. 4, p. 89.

82. **Comparative Wassermann and Stern Biologic Tests.**—Melkikh's communication reports the findings with parallel Wassermann and Stern tests applied to 2,500 persons. The Stern technic seems to be more sensitive, giving positive results in more cases than the Wassermann, and it was never negative in any case giving a positive Wassermann. When the Stern was positive and the Wassermann negative, it sometimes proved possible to obtain a positive Wassermann reaction by taking more serum or by applying the Wechselmann technic. The antigen must be carefully tested in relation to normal serum. Sometimes under treatment the Stern reaction may persist positive after the Wassermann has veered to negative. Treatment should be continued until both are negative, he reiterates.

85. **Pathologic Effects of Experimental Cholesterinemia.**—Anichkoff has been experimenting with cats, as meat eating

animals, rats and rabbits, pouring into their stomach through a stomach tube a 4 per cent. solution of cholesterin in sunflower oil in amounts up to 20 c.c. Fat infiltration with cholesterin esters was evident in the liver, the endothelial apparatus, suprarenal cortex and the walls of the arteries after a month or so of this alimentary hypercholesterinemia. These reactive and degenerative changes seem to correspond, he says, to human atherosclerosis, xanthelasma, and certain types of liver and suprarenal derangement.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

March 31, I, No. 13, pp. 977-1076

86 *The Borderland of Saprophytism. (Het grensgebied van commensalisme en parasitisme.) J. J. Van Loghem.—p. 994.
87 *Blue Sclerotics, plus Fragility of Bones and Deafness. J. Van der Hoeve and A. de Kleijn.—p. 1003.
88 The Diazo Reaction No Guide in Prognosis of Tuberculosis in Children. J. B. Schwab.—p. 1010.
89 Tumor in Liver Simulating Laennec's Cirrhosis. R. Remmelts. —p. 1013.

86. **Parasitic Symbiosis of Bacteria.**—Van Loghem defines three types of parasitic symbiosis: mutualism, in which both host and parasite benefit; commensalism, in which the host does not suffer but only the parasite benefits; and parasitism, in which the host suffers and the parasite benefits. He then discusses the borderland between the last two forms, saying that a typical instance of this phylogenesis of parasitism is the sequence formed by the colon bacillus—paratyphoid—typhoid group. Similar transitional sequences are encountered in the dysentery bacilli group, as he describes in detail. More attention should be paid to this promising field embracing the borderland between commensalism and parasitism, as it contains much that is of importance for epidemiology.

87. **Blue Sclerotics and Other Anomalies in Family.**—Van der Hoeve gives the family tree through four generations of a family in which eleven of the twenty-two members had blue sclerotics, extremely fragile bones and otosclerosis. Fractures and curvature of bones were common, and nearly all the members of the family were delicately built. Seven of the nine personally examined had syndactylia. The grandfather and four of his six children presented the trio of anomalies and six of the seven children of one of the sons affected, but all the seven other grandchildren escaped.

Hospitalstidende, Copenhagen

April 25, LX, No. 17, pp. 393-416

90 *Pains and Contracture of Fingers after Injury of Ulnar Nerve; Two Cases. A. V. Neel.—p. 393.

90. **Painful Contracture of Fingers after Injury of Ulnar Nerve.**—Neel has found only two cases on record similar to the two from his own practice which he describes in detail. The contraction was extreme only in the little finger and the one next to it, and the intense pains were restricted to the ulnar side of the hand. This entire region was also extremely tender. The thumb and forefinger were normal. There was a history of trauma of the ulnar nerve in all, single in three, and repeated, occupational injury in the fourth. This latter patient improved progressively after a change to another occupation.

Norsk Magazin for Lægevidenskaben, Christiania

May, LXXVIII, No. 5, pp. 505-640

91 *Progressive Bulbar Paralysis plus Progressive Spinal Muscular Atrophy in Adult Brothers. L. Sommerfelt.—p. 505.
92 *Roentgen Examination of Motor Functioning of Stomach. B. Kjørstad.—p. 545.
93 Fatal Intestinal Hemorrhage from Angiomatosis in Man of Forty-One. J. Borchgrevink.—p. 552.
94 Multiple Nodules, Simulating Tumors, with Chronic Peritonitis. E. Platou.—p. 560.
95 Case of Total Lateral Situs Inversus. H. Hopstock.—p. 566.
96 Apocynum in Treatment of Insufficiency of the Heart. (Cymarin og apocynum ved hjerteinsufficiens.) H. Salvesen.—p. 578.

91. **Progressive Bulbar Paralysis.**—Sommerfelt calls attention to the cases he reports in two brothers, men of 43 and 57, who both developed progressive bulbar palsy. The younger man had been previously healthy. As the bulbar paralysis continued its insidiously progressive course, progressive spinal muscular atrophy also became installed after twelve or eighteen months, and the man died by the end of the second year. The other patient was healthy until the age of 31 when he had a subacute attack of poliomyelitis which left him with slight bilateral quadriceps paresis. Twenty-three years later, six years after his brother had died from bulbar paralysis, he also developed a typical case of it, progressive spinal muscular atrophy also developing after a year. Necropsy in both cases confirmed the clinical diagnosis of these associated affections. Both men complained of severe pains; this is an unusual symptom with nuclear amyotrophy. The pains were mostly restricted to one side, although the muscular atrophy was pronounced on both sides. Nothing could be found to explain the younger brother's pains in his chest.

Sommerfelt has compiled from the literature fifty-nine cases of progressive spinal muscular atrophy, and all but seventeen showed a familial or inherited tendency. He has found only three instances on record of familial progressive bulbar paralysis, in mother and son, or in two brothers. Progressive external ophthalmoplegia has been noted in the same family by six clinicians. Amyotrophic lateral sclerosis has also been encountered in father and two children (Gee); in four sisters (Seeligmüller) and other familial cases have been published by other clinicians. He lists the titles of 105 articles on the subject. They demonstrate the possible familial tendency for myelogenous nuclear muscular atrophy, but show that it is rare. The records also show that when it developed after acute poliomyelitis only males were affected, and also that it developed at an earlier age than under other conditions; under 25 in 50 per cent. of the thirteen available cases, and in over 25 per cent. between 25 and 35. The interval ranged from two to seventy years. Only one of the nineteen patients was a woman, and in this case the trouble began with external ophthalmoplegia. Primary progressive spinal muscular atrophy affects both sexes nearly alike, as also acute poliomyelitis. In Leegaard's compilation of 3,290 poliomyelitis cases 55.57 per cent. were males. It seems plausible to assume that the severer use made of the muscular system by men exposes those who have had acute poliomyelitis to greater danger of progressive spinal muscular atrophy later than women, whose musculature and nervous system are not subjected to such strain. He urges investigation of the kind of muscular work that patients with this atrophy have been doing. This may possibly throw light on the causes of spinal muscular atrophy.

92. **Roentgen Examination of the Motor Functioning of the Stomach.**—Kjørstad has been investigating the relations between "Roentgen retention" in the stomach and clinical retention in ten healthy medical students and in 100 patients. The stomach was entirely or practically empty in the students by the end of the fifth hour. In 9 per cent. of the patients there was more or less Roentgen but no clinical retention, and in 17 per cent. there was clinical but no Roentgen retention. In the other 74 per cent., retention was evident with both the test meal and the contrast meal. This comparatively frequent lack of parallelism in certain cases between the evacuation of the contrast meal and the ordinary test meal is suggestive.

Ugeskrift for Læger, Copenhagen

April 26, LXXIX, No. 17, pp. 647-684

97 Clinical and Roentgenologic Study of Chronic Habitual Constipation. IV. T. E. H. Thaysen.—p. 647. To be continued.
98 *Quantitative Determination of Albumin in the Urine. G. Andresen.—p. 660.

98. **Test for Albumin in the Urine.**—Andresen here relates comparative tests with his technic for albumin in the urine. A round, not pointed, albuminometer must be used. The urine and the Esbach reagent are placed in it as usual and then 0.1 or 0.2 gm. of barium sulphate (tungspat) is added and after mixing the glass is set aside for precipitation. In four minutes it is complete. The amount of barium sulphate is immaterial. If the urine contains over 2 per thousand albumin it should be diluted before applying the test. The tabulated details show close concordance between the findings with this test and the Kjeldahl, especially with urine from nephritics.